

COMPUTERWORLD

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Feds drive to unleash Bells

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — The Department of Justice last week recommended that U.S. District Court Judge Harold H. Greene unleash the seven regional Bell holding companies and allow them to enter the fields of information processing services, equipment manufacturing and, to a limited extent, long-distance service.

If Greene agrees to remove the restrictions imposed by the AT&T divestiture judgment in 1982, the companies could provide electronic mail, voice mail, videotext, access to on-line data bases or any other information processing service. They also could undertake joint ventures with equipment manufacturers and offer long-distance service outside their regions.

The sweeping deregulation proposal would provide end users with seven new vendors to consider — each of which had greater 1986 revenue than Digital Equipment Corp. and whose combined profits of more than \$7 billion exceeded IBM's — but users greeted the proposal with

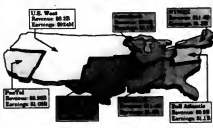
a mixture of skepticism and apprehension about another overhaul of the nation's telecommunications marketplace.

The International Communications Association, a major user group for communications

Commission, prevent monopolistic behavior by the regional holding companies.

"I don't like to rely on the FCC. The FCC had a hell of a time regulating AT&T five years ago," which led to the AT&T di-

The thunder of seven Bells Wealthy regional holding companies eye new markets



CW STAFF; MITCHELL J. HAYES

managers, along with vendors of data communications products, criticized the proposal on the grounds that it relies too heavily on having the Federal Commu-

nity, said Bob Bennis, ICA's director of telecommunications public policy. Bennis recently retired as corporate manager of

Continued on page 6

Is FCC willing to bar abuse?

BY ELISABETH HORWITT
CW STAFF

ANALYSIS

The chorus of objections from the telecommunications industry to last week's Department of Justice proposal centers on one question: How is the Federal Communications Commission going to prevent the local exchange carriers from running roughshod over their competitors if the Justice Department resigns its role as regulatory watchdog?

Telecommunications vendor and users group spokesmen claim the proposal gives the regional carriers unwarranted new freedom and, at the same time, abolishes the regulatory framework that would keep them from abusing that freedom. "The [regional holding companies] don't need federal relief; they are large, powerful companies," says Robert Aldrich, an attorney

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DEC to fill VAX low end with \$10,000 workstation

BY NINAMARY BUDA MAGNINIS
CW STAFF

Digital Equipment Corp. is expected to round out the low end of its VAX microcomputer line tomorrow by announcing its single-user Vaxstation 2000 and multiuser Microvax 2000 systems and the ability to cluster them in a local-area environment.

The company is also expected to introduce enhancements to its low-end local-area Vaxcluster technology that was announced last November.

The announcement, analysts

say, will strengthen DEC's strategy to provide a common architecture, operating system and networking capability that covers low-end, intermediate and high-end computing.

The 2000 series systems, known as Vaxstar, will be monochrome and run under both VMS and Ultrix, DEC's version of Unix, operating systems. Performance estimates for the new machines are as high as 0.9 million instructions per second, according to sources close to DEC. That is equal to the performance of the Microvax II and almost equal to the one-time high-end DEC system, the VAX-11/780.

The Vaxstation 2000 workstation, aimed at the engineering and scientific markets, will run the DEC QVSS graphics system and will be Q-bus compatible so that it can run Microvax peripherals. An entry-level configura-

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Screws tighten on 4381

Growing power needs pressure aging CPU line

BY STANLEY GIBSON
CW STAFF

The coming year promises to be a luteal one for users of the IBM 4381, a machine that is in jeopardy because it is surrounded by 9370s from below and 3090s from above.

Having received a mid-life kick last year, the 4381 could be heading into its final months of production, or it could be due to get a new lease on life, according to industry watchers.

Opinion diverges into two paths: IBM must either carry a separate 4381 line with a relatively small range of performance options, or it must discontinue current 4381 users to the low end of the 3090 series or to an expected higher end of the 9370 series.

"I'm in some doubt if it will be an extension of the 9370 or a new 4381. I don't think IBM knows. They do the development and then decide a week be-

fore the announcement date," says Per Flaaten of Arthur Andersen & Co. in Chicago.

The issue is becoming a pressing one in the 4381 community, because many users say

The 3090 shuffle

Surveyed users plan to buy fewer 3090s; the industry estimates upgrades. **Page 4.**

they are running out of breathing room and will need a new machine within the next year.

"We're going to need something within 10 or 12 months; or we might have to replace the 4381 with a small 3090," says Bob Smith, data center manager at Rosemount, Inc. in Eden Prairie, Minn. Smith says he and his friends in the user community anticipate two larger models coming out shortly.

Doug Murphy, director of
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Big things in little packages. As DEC increases disk drive power for MicroPDP-11 minis, users wait patiently for the elusive Vaxmate PC AT-compatible, and computer-aided software engineering comes to VAX/VMS processors. **Pages 19, 27, 49**

Network security. Controlling and managing access to network resources is the aim of vendors and users alike. **Page 39**

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91 Study says software maintenance backlogs, budgets will grow.

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Contractor tax repeal pushed in Senate

BY DAVID A. LUDLUM
CHICAGO

WASHINGTON, D.C. — U.S. Sen. Alfonse M. D'Amato last week introduced a bill to repeal Section 1706 of last year's tax reform act, which has forced many free-lance computer professionals to give up their independence.

D'Amato (R-N.Y.) was joined in sponsoring the bill by Democratic Sen. Christopher J. Dodd of Connecticut. Their proposal calls for retroactive repeal of Section 1706 and reestablishment of the 1978 "safe harbors" that have allowed most free-lance technical contractors to be taxed as independent businesses.

"Section 1706 is an inequitable law that unfairly pushes men and women in arbitrarily selected occupations," said D'Amato, adding that no public rationale has been established for targeting computer and engineering contractors.

"It is bad enough that the in-

dependent contractor issue was never studied [as Congress intended], but Section 1706 was neither the subject of a hearing nor any meaningful floor debate," D'Amato said.

Section 1706, which took effect Jan. 1, was slipped into the tax overhaul act by Sen. Daniel Patrick Moynihan (D-N.Y.) in June. The law has prompted strenuous lobbying by trade groups seeking to eliminate it.

Many independent computer professionals have been outraged since late last year as they learned that Section 1706 might require them to become an employee of the broker through which they work, necessitating that taxes be withheld from their pay and forcing them to give up a number of deductions.

Last month, the Internal Revenue Service issued a clarification of Section 1706 that said the law applies to subcontractors working through a broker but not to free-lancers contracting directly with clients.

IBM woos top MIS execs

Shares product strategy with major accounts

BY JEAN S. BOZMAN
CHICAGO

IBM shared some of its future product strategy with 150 of its best customers last week in a special meeting designed to kick off what the company has termed "The Year of the Customer."

At a time when IBM has been faced with criticism of its multifaceted array of products, the meeting gave the information directors who spend the most on IBM's products a chance to speak directly to IBM's highest executives.

Among the latter were Chairman John F. Akers, Edward E. Lucente, vice-president and group executive of the Information Systems Group, Ralph E. Gomory, IBM senior vice-president and chief scientist and Edward B. Altman, vice-president of the Data Systems Division and general manager of the Kingston, N.Y., facility.

Among the users who attended were representatives of: Merrill Lynch & Co.; Metropolitan Life Insurance Co.; Texaco, Inc.; Travelers Insurance Co.; and Mellon Bank, N.A.

The information presented was different more in kind than in specifics. It struck listeners as

somewhat unusual for IBM to be stating outright its directions in network architecture, office strategies, hardware and operating systems for the next few years. Among the topics covered, attendees reported, were standard user interfaces and audio-response office automation software.

However, IBM was also looking for feedback from its valued customers. "We wanted to listen to these customer executives and to give them information on building their strategies for the future," a company spokesman said. The initial re-

sponse was quite favorable, an informal survey showed. "Something that hit home with me was that the top executives were participating," said Daniel Cavanaugh, senior vice-president of data processing at Metropolitan Life.

There will be more such meetings in the future, IBM said. Users who attended seemed pleased with the trend. "This is the first step in allowing customers to see into the secret world of IBM product strategy," George DiNardo, executive vice-president of Mellon Bank in Pittsburgh, said.



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Holding companies hail proposal

BY DONNA RAIMONDI
IN WASH.

The Department of Justice's recent recommendation to lift restrictions from the Bell regional holding companies met with swift approval and cries of "More!" from the holding companies.

Nynex Corp. Chairman Delbert C. Staley called the recommendation for relief from the restrictions of the Modified Final Judgment an important first step toward bringing information-age services to its customers.

Echoing Staley's comments was Thomas Bolger, chairman and chief executive officer of Bell Atlantic Corp., who added that he was greatly encouraged. A spokeswoman for Pacific Telesis Group said it was "generally pretty pleased" with the report's recommendation.

While AT&T and the Competitive Telecommunications Association (Comptel), which includes U.S. Sprint Communications Co. and smaller long-distance companies, protested vigorously, the holding companies urged U.S. District Court Judge Harold Greene to heed the Justice Department's recommendation and to lift all restrictions now placed on them.

"We feel [the Department of Justice has taken a major step in the right direction, but they didn't go far enough," said a spokesman for Ameritech, which is the Chicago-area holding company.

The most glaring issue is the continuation of long-distance restrictions under the Justice Department's recommendation, the spokesman said. Currently, the holding companies are not allowed to engage in long-distance services.

Under the proposed changes, a holding company could offer long-distance service only outside its own region.

Preventing exploitation

The long-distance restriction was designed to prohibit holding companies from exploiting their local monopolies by discriminating against potential long-distance competitors that must hook up to the holding companies' exchanges, the Justice Department report said.

"Many of our customers would prefer a single point of contact for all of their telecommunications needs, and we are simply not allowed to do that now," Ameritech's spokesman complained.

The services package Ameritech wants to offer includes selling customer-premise equipment, local and long-distance service and specialized data services such as forming, installing and maintaining networks for corporate customers.

Complete services

The only way holding companies could offer complete long-distance service in the future, according to the 210-page Justice Department document, would be if the individual state public utilities commissions or legislatures decided to open local telephone monopolies to competition.

Even so, the long-distance suggestions met with harsh words from Comptel.

"[The holding companies] are intentionally and aggressively providing a preferential arrangement to themselves" as areas the intra-local access and transport area (LATA) toll services, a Comptel statement said.

The association claims that the holding companies deny smaller telephone companies access to essential facilities and engage in price discrimination for intra-LATA access services.

Senior Editor Patricia Keefe contributed to this report.

Consumers fear plan will push rates higher

BY DONNA RAIMONDI
AND PATRICIA KEEFE
IN WASH.

As the regional holding companies exult at the business possibilities opened by the Department of Justice recommendation to abolish restrictions against them, other groups wonder who will pay for holding company fees into new, unregulated ventures.

The Competitive Telecommunications Association (Comptel), an association consisting of U.S. Sprint Communications Co. and a number of small long-distance companies, is worried. Although the regional holding companies are prohibited from using ratepayers to subsidize unregulated businesses, spokesmen for three holding companies refused to discuss concerns that users will rise if the Justice Department's recommendations are adopted.

Pressed on this issue, a spokeswoman for Pacific Telesis Group (PacTel) said the fears would be a natural part of the "premium." "We all have to wait and see what the courts are going to do," she observed.

A lot of regulation

Conversely, a spokesman for Bell South Corp. said that regulation against cross-subsidies will not go away. "There would still be a lot of regulation from the Federal Communications Commission and from public service commissions in each of the nine states we service," he explained.

"The [divested Bell operating companies] have a vast ability to subsidize their competitive services from revenues obtained from their captive monopoly ratepayers," Comptel said. "Such cross-subsidies would be anticompetitive and would drive up rates for local telephone service." A report to the California Public Utilities Commission (PUC) charged that PacTel and its subsidiaries subsidized its competitive businesses with monopoly ratepayer funds. The PUC was concluding hearings on the charges last week and is expected to issue a ruling in four to six months.

Most of the holding companies have already entered a number of unregulated ventures. Chief among them are credit, leasing and service support, real estate management and development; mobile cellular phones; computer retail stores; software; and the sale of telephone equipment. Few of the companies would elaborate on the new industries they are most likely to target should the Justice Department's recommendation be adopted.

One of the most aggressive holding companies is Bell Atlantic Corp., which has pursued a policy of acquisition to enter new markets. Among its purchases are Sorbus, Inc. and the Comptel, Inc. retail chain and Continental Leasing Corp.

"We will look at the markets open to us to determine where our participation allows us to meet customer needs," commented Bell Atlantic Chairman and Chief Executive Officer Thomas E. Bolger. A spokesman said the company did not want to "bare its strategy" concerning new ventures.

E-mail a natural

A spokeswoman for PacTel was more forthcoming. "In the past, we have really focused our interests on the information services businesses vs. manufacturing and long distance." Under its international division, PacTel operates an electronic mail service called One-to-One. "Electronic mail would be a natural. We are building up expertise in this area," she said.

One hotly contested area that the holding companies are likely to jump into is electronic Yellow Pages. "Obviously, that is one area where we are going to be immediately. Our planning could shift into high gear with [U.S. District Court Judge Harold] Greene's lifting the restrictions," an Ameritech spokesman said. Traditional newspaper publishing organizations like the American Newspaper Publishers Association have claimed for years that electronic Yellow Pages would be a threat both to competition and to the First Amendment—a claim the holding companies deny. The newspaper publishers are protesting their sad revenues.

Nynex Corp., in addition to purchasing the IBM Product Centers last year, has exhibited a strong focus on software, purchasing three companies.

Bell South's Bell South Enterprises handles all of its nontelephone businesses. These include advertising and publishing services for its Yellow Pages and multitenant telecommunications services for convention centers. "It is premature to speculate on what we will be going into at this time, because we have no idea what the judge is going to do. But some information services that have been discussed a lot are voice mail, electronic mail, home banking, credit card authorization by telephone and energy management systems by telephone," the spokesman said.

Feds drive

FROM PAGE 1

communications systems at Westinghouse Electric Corp. in Pittsburgh.

Although the regional holding companies still have monopoly power over phone services within their individual regions, Justice Department officials said the restrictions can be lifted because the FCC now requires the companies to provide competitors with equal and fair access to the local network, via the Comparably Efficient Interconnection and Open Network Architecture rules.

According to Brian R. Moor, the ICA's Washington, D.C., counsel, ICA members and many vendors are troubled that the major antitrust safeguard embraced by the Justice Department is Open Network Architecture, an undefined and unstated concept.

Concerning long-distance service, the Justice Department said a regional holding company should be permitted to offer long-distance service that is entirely outside its region, because there the companies do not control the local exchange monopoly and cannot unfairly disadvantage long-distance rivals.

However, the department said the holding companies should be prohibited from offering long-distance service that

originates or terminates inside the company's territory.

For example, Nynex Corp., the regional holding company serving New York and New England, could offer long-haul service between Los Angeles to Atlanta but not between New York

page 7).

Bennis, the ICA official, warned that it is premature to let the regional holding companies enter the long-distance market, given the shaky condition of MCI Communications Corp. and U.S. Sprint Communications Co.

Freeing the Baby Bells

Department of Justice recommendations

LINE OF BUSINESS	JUSTICE DEPARTMENT RECOMMENDATION
Long-Distance Service (Metropolitan, regional, national service)	Allowed only outside AT&T Bell region. In-region network allowed after state opens local exchange to competition.
Information Services (Information, research, education, on-line data base)	Must comply with FCC's Open Network Architecture rules to give other vendors equal access to the local exchange.
Equipment Manufacturing (Central office switches, transmission equipment, private branch exchanges, terminal equipment)	Subject to FCC's rules against anticompetitive behavior.
Nonvoice telecommunications (Real-time, financial services, long-distance)	Completely deregulate. Abolish the local exchange monopoly.

EW10887

and Boston.

The Justice Department said this last restriction, against in-region long-distance service, could be waived if state regulators allow competition in the local exchange market (see story

"I'm really worried about whether three years from now you'll have a viable, competitive [long-distance] market out there. You may have seven regional companies and AT&T and no one else," he said.

Proposal raises questions on jurisdiction

BY ELISABETH HORWITT
C/1007

A key area of concern for all segments of the telecommunications industry is how the U.S. Department of Justice, the Federal Communications Commission, and state public utility commissions will divide up responsibility for implementing the new regulations — particularly those relating to the interexchange market.

The Justice Department has recommended that the local exchange carriers be allowed to offer interexchange transmission services anywhere outside their own local access transport areas. However,

the department further suggests that "the prohibition on such 'in region' service be lifted only in those areas where the states remove the regulatory protection that guarantees the local Bell company a monopoly franchise for local telephone service."

Carriers that serve several states have already run into the problem of local authority. For example, in December, the Massachusetts Public Utilities Commission (PUC) determined interexchange carriers would



Judge Greene

be allowed to offer local service within the state. A similar decision was made in New York, according to Nynex Corp. manager of public relations Richard Adler. Under the Justice Department's ruling, Nynex would probably be allowed to offer interexchange services in Massachusetts and New York but nowhere else within its region.

The PUCs, most likely, will also be among the regulators of the local exchange carriers' other business ventures,

says Kevin Sullivan, one of the leading attorneys for the Justice Department in the AT&T antitrust case, because one function of their jobs is to guard their ratepayers against unfair charges. Here again, local carriers may be given more leeway in one state than in another.

The most important question, of course, is whether — and when — Judge Harold Greene will approve the Justice Department's proposal. Greene has several times gone against the department's recommendations — but always in the direction of leniency toward the local carriers. Sullivan points out.

Greene is likely to act quickly in this instance, Sullivan suggests. He estimates that a decision should be made by late fall or winter of this year.

Is FCC willing?

CONTINUED FROM PAGE 1

for vendor organization North American Telecommunications Association. "The Department of Justice wants to indulge their appetites without providing a curb."

Under fire are two FCC regulatory actions initiated last year. The FCC's Open Network Architecture (ONA) plan, scheduled to go into effect next February, permits the operating companies to offer enhanced telecommunications services only if their competitors and customers are guaranteed the same type of access to the local transmission services that carry such offerings. The FCC's recently announced accounting guidelines would ensure more detailed cost allocation among local carriers' regulated and deregulated businesses.

This is to prevent the local carriers from using the profits from their local telephone monopolies to finance business ventures in the deregulated markets.

Unevaluated guidelines

Telecommunications industry group spokesmen have complained that they have not yet had a chance to evaluate the effectiveness either of ONA, which local carriers claim is still in the planning stage, or the FCC's accounting guidelines, which were just released last Friday.

Another complaint is that the FCC has neither the resources nor the will to enforce its new regulations.

FCC staff attorney Jane Jackson admits that it is beyond the FCC's current resources to "monitor, audit and investigate cost allocations [among carriers' deregulated and regulated businesses] on an item-by-item basis."

Ill-sulted permissiveness

Industry members also suggested that the FCC's past dealings with the local exchange carriers indicate a permissiveness ill-suited to its future role as watchdog.

In the past year or two, the commission has removed the separate subsidiary requirements applying to customer premise equipment and information service businesses.

Kevin Sullivan, formerly lead counsel for the Justice Department in the AT&T antitrust suit, vouches for the ultimate effectiveness of the FCC and its new regulations, adding that "the dangers of letting the local exchange carriers into the information services market are outweighed by the advantages of opening up the market and spurring technological development."

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DOT probes reservation systems

BY ALAN RYAN
CW STAFF

WASHINGTON, D.C. — The Department of Transportation (DOT) last week ordered five leading airlines to turn over information on the management of their automated reservation systems.

Following a request from the leaders of the U.S. Senate and House of Representatives Aviation Subcommittees, the DOT began an investigation into the use of computer reservation systems operated by American, Delta, Eastern, United and Trans World Airlines.

The order calls for information on the fees paid by airlines whose flights are displayed on computer reservation systems but who do not own the systems, how they list the flights of competitors and the prevalence of restrictive clauses in the vendors' contracts with travel agent subscribers.

American leads market

All five airlines use computer reservation systems. American leads the market in number of systems in use, followed by United, Eastern, Trans World and Delta, respectively.

Competing airlines that contract with the five carriers for reservations services claim they have been charged high fees to use the service and say the way some of the flights are listed are

baised toward the owner of the system. Travel agents have also complained that restrictive clauses prevent them from switching freely to a competing computer reservation system without facing penalty fees.

Joe Stroop, manager of corporate communication at American Airlines in Fort Worth, Texas, said that travel agents using American's Sabre system should be penalized if they try to break their contract before it expires, whether or not they plan to use a competing computer reservation system.

Mark Brand, director of communications at United, said he did not know the specifics of the contracts United has with travel agents using its Apollo computer reservation system, but he did say that the Apollo data base is compiled with time of departure as its first priority, followed by service, including nonstop or one-stop flights or change of plane.

With the time of departure listings, Brand said, competing airlines' flights often appear before United flights on the computer reservation system screen. "We believe our system is a neutral one whose data base is based upon time of flight departure," he said.

Some travel agents say the concern over biased listings in the computer reservation system stems from the fact that

travel agents are more likely to select the airline that first appears on the screen rather than turn pages in the computer.

"In some situations, if the circumstances fit, whatever the screen displays is going to influence you," said Stephen Baldi, director of finance at Crimson Travel Service in Cambridge, Mass. "If the client is satisfied, you don't have to go any further."

"However, I think a lot of the bias is overplayed," Baldi said, adding that ultimately the consumer makes the decision on what flight, airline and fare are wanted.

Unfair competition

In 1984, the now-defunct Civil Aeronautics Board issued rules on unfair competition dealing with computer reservation systems.

At that time, the rules said in effect that it would be an unfair method of competition for a reservation system vendor to charge one carrier more than another for the same service.

"We have nothing to hide. We run our system in a fair, above-board manner," American's Stroop said. He explained that with the Sabre system, American acts as the supermarket and charges other carriers to rent space on its shelves. "There is a set fee... it's the same for everybody," which is regulated by the government, he added.

Natural language link ties mainframe DBMS to PCs

BY CHARLES BABCOCK
CW STAFF

WALTHAM, Mass. — A natural language-style link is being offered by the Artificial Intelligence Corp. to tie a group of mainframe data bases to personal computers.

Artificial Intelligence is the producer of Intellect, a natural-language query, analysis and reporting tool used on a mainframe that now includes an interface capable of translating English-language statements into SQL queries to IBM's DB2.

Intellect PC Link works in conjunction with Intellect on the mainframe to extract data from DB2, IBM's SQL/DS, Information Builders, Inc.'s Focus or Software AG of North America, Inc.'s Adabas and ship it to the

personal computer. The link automatically reformats the data into a format compatible with Lotus Development Corp.'s 1-2-3 spreadsheet or ASCII format. The link includes both a mainframe and personal computer parts. It costs \$25,000 with an unlimited number of PC units allowed, site-license style, with the purchase, said Frederick Lizza, vice-president of marketing for Artificial Intelligence.

The PC portion of the link runs on an IBM Personal Computer XT or AT, with the mainframe portion running on an IBM 4341 or larger mainframe or compatible. The base price of Intellect itself is \$60,000. Interfaces to particular data bases range from \$15,000 to \$35,000.

MAP/TOP group joins COS

Two of the computer industry's top communications standards promotion organizations have announced an alliance.

The Manufacturing Automation Protocol/Technical and Office Protocol (MAP/TOP) Users Group has accepted an invitation from the Corporation for Open Systems (COS) to participate in the "exchange of ideas and pur-

suit of common goals."

The move makes MAP/TOP COS's first Associate Alliance member — a newly created category of nonpaying, nonvoting membership designed to establish peer relationships with outside organizations that share mutual goals. COS is being granted reciprocal membership in the MAP/TOP Users Group.

Managers shun 'risk' of mail-order PCs

BY DAVID BRIGHT
CW STAFF

Despite pressure from users who have heard about amazing prices and positive experiences from mail-order personal computers, managers in large corporations are still saying no to requests for mail-order systems. The reasons usually given include the word "risk."

It is not uncommon to see IBM Personal Computer AT-compatible systems advertised by mail-order companies for just \$1,000. That's less than 30% of the price of a comparably equipped AT, including the system with 256K bytes of memory, a floppy disk drive and a key-board, even with IBM's recent price reductions.

IBM Personal Computer XT-compatible systems can be purchased for as little as \$400.

But ordering systems through the mail from companies that have not demonstrated a track record in the computer industry through engineering and support is just too risky in terms of present and future compatibility and operation, many managers say. And shipping problems

in systems back to the vendor for service instead of getting on-site service from a name-brand vendor is too risky in terms of lost productivity.

At Cleveland-based Eaton Corp., the corporate policy is to discourage users from buying mail-order systems in favor of higher priced, but proven, standard systems from IBM. Eaton occasionally buys Compaq Computer Corp. systems as well. This policy sometimes gets questioned by employees who do not realize that price is not the only issue, says Fred Zickert, manager of the PC support center at Eaton.

When volume-purchase agreements with big companies, service, compatibility and dependability are factored in, the cost differential on mail-order systems is not as dramatic as it might seem at first, Zickert explains. But the allure of low-priced, mail-order systems "has made the corporate responsibility a little difficult at times," he observes.

While many mail-order companies advertise 100% IBM PC compatibility for their systems,

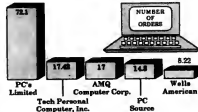
Zickert and other managers say they are not convinced. Zickert adds that software compatibility could become a problem for some mail-order firms when Microsoft Corp. brings out its new MS-DOS operating system for PC AT-compatible machines.

Also questioning the ability of mail-order companies to buy mail-order computers is Greg Allman, senior consultant for management advisory services at Deloitte Haskins & Sells in New Orleans. For example, he says he feels confident that if IBM decides to change a read-only memory chip, Compaq — with its extensive resources — would be able to handle the change, while a mail-order company might have some trouble.

In addition, there is the service problem, Allman observes. If a hard disk drive has a head crash and the heads are parked on the platters, there is no way to protect the data while the system is shipped cross-country for service, he says.

Some mail-order firms do provide for on-site service through third-party service organizations.

Mail-order personal computers 1986 shipments of selected vendors



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.
BY CHART BY MICHAEL J. HAYES

Because mail-order PCs sometimes need some fine tuning before they can be used, the systems are for hands-on people only, says Jeff Ehrlich, who is in charge of microcomputer evaluations at General Electric Co. in Bridgeport, Conn. "We normally don't recommend mail-order PCs unless the people are very knowledgeable and can fix problems by themselves."

For the future, some managers do not count out the likelihood of their firms making volume purchases of mail-order systems.

After testing a mail-order unit from PCs's Limited, Rockwell International Corp.'s Cedar Rapids, Ill., office has gradually been buying more of the systems, says buyer Debbie Merritt.

PCs's Limited has emerged as one of the most successful and respected mail-order system companies. Last year, the Austin, Texas-based company shipped some 72,100 systems, according to IDC. Unlike many other mail-order firms, the company makes its own read-only memory BIOS and has its own manufacturing facilities.

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Iebcopy	58 min.	14 min. 52 sec.	97,253	\$92.05
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SOFTWARE ENGINEERING OF AMERICA

SEA

Takeover toll rips Software International

BY CHARLES BABCOCK
CW 57497

ANDOVER, Mass. — Software International Corp., the former General Electric Co. subsidiary acquired by Computer Associates International, Inc. is undergoing the trauma of a takeover: staff reductions, the merging of two different corporate cultures and a revised product direction.

In the process, it is losing a core of top planning and marketing executives who have guided the once-flagging mainframe software house back toward an improved product line and revenue flow since 1983.

According to accounts from company

insiders and others, Computer Associates executives moved quickly after the Dec. 1 takeover, having already sized up who was essential. It consolidated as many administrative and support operations as it could in the first week of ownership, eliminating from 68 to 72 people in the 370-employee firm.

"We got 100 phone calls the next day. People were really shaken up," a vice-president of a major software company in the Boston area said.



Robert Healy

Despite the cuts, observers said Computer Associates succeeded in retaining the Software International sales force and development staff. The 40-person sales force was critical because Computer Associates plans to consolidate its accounting products into Software International's Masterpiece series.

In addition, Dick Dowdell, author of the Masterpiece accounting series underlying architecture, was retained by Computer Associates, sources said.

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The reorganization led to a number of key management people going out the door, including Jeffrey Goodman, former Software International president and a fast-track young executive from GE. He assumed his post in October 1981 at a time when the firm was losing \$9 million on revenue of \$30 million, and "we had no choice but to get these bright, highly energetic people and let them run," according to Robert Healy, former senior vice-president of marketing at Software International.

Stefan R. Bothe, president of Computer Associates' Application Products Division in Garden City, N.Y., said most of the executive departures "were not people we had cut. You like to retain as much talent as possible."

Computer Associates has folded Software International into Bothe's young applications division; a 10% reduction in his staff in Garden City occurred at the same time that an 18% reduction occurred at the Andover site, Bothe said.

A Software International employee said in Andover said the Garden City reduction made the staff cuts in Andover more palatable. "It impressed people as a real business decision," she said.

But one of the departed executives, Regis P. Kaufman, was coordinating Software International's move into the Digital Equipment Corp. market and had built strong relationships with the Maynard, Mass., hardware manufacturer. Kaufman, who was not available to comment, resigned in early December and accepted a job with DEC, former associates said.

Healy, 44, said he found himself "a free agent for the first time in my life," after helping Computer Associates with a transition phase through December.

Frederick J. Luzzi, formerly manager of small systems software at Software International, is now vice-president of marketing at Artificial Intelligence Corp. in Waltham, Mass.

Mass of departing executives

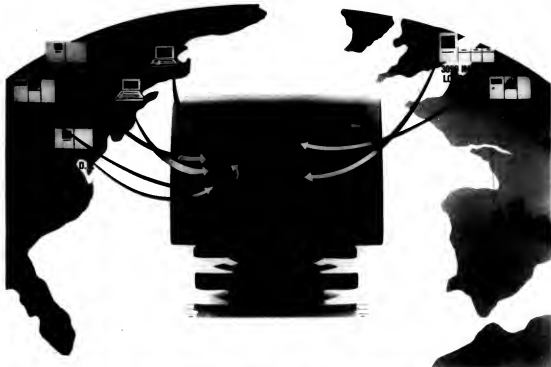
Other executives who have left include the following:

- Robert Magliorini, former chief financial officer, resigned to accept a similar position with the GE venture capital group in Fairfield, Conn.
- Richard Willey, vice-president of client services, resigned and could not be reached for comment.
- John Lyon, senior vice-president, technology, resigned and joined a GE operation in Bridgeport, Conn.

In a high-turnover business like the software industry, some of these departures were inevitable, even without a takeover, observers said. Last July, Jeff Papows left to become vice-president of marketing at Cullinet Software, Inc., the observers noted. But occurring as a group, as they have recently at Software International, the departures may hurt the company's prospects of carrying out its immediate business plan.

Bothe said consolidating staff is a necessary move for a sales and marketing-oriented firm like Computer Associates.

One decision already reached has been to fold Software International's push into the DEC market, formerly under Kaufman, into a General Systems Division that includes other minicomputer vendors served by Software International. An independent DEC sales force will be retained, but some departing executives question whether it will have the effectiveness as a group focused on DEC.



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Network independence means users don't need to know what networks are used to transmit their data. DECNET, SNA APPC, coax connections, Ethernet/TCP/IP, async or others.

DBMS independence means users don't even need to know what DBMS is providing the data: ORACLE, IBM's DB2 or SQL/DS. And in 1987, even VSAM, IMS and other non-SQL DBMSs.

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Rolm adds capacity, fills hole in line of private branch exchanges

BY ELISABETH HORWITT
CW STAFF

SANTA CLARA, Calif. — Filling a crucial, long-standing gap in its CBX II product line, Rolm Corp. last week announced the CBX II 9600AE, a high-end private branch exchange (PBX) that can handle 20,000 lines — or twice the capacity of the existing high-end product, the CBX II 9000, the company said.

"This is a tremendously strategic announcement for Rolm, because now they

can compete head-to-head with the major PBX manufacturers," commented William Felling, vice-president and group director at Cupertino, Calif., research firm Dataquest, Inc.

AT&T and Northern Telecom, Inc. have for some time offered PBXs with capacity comparable to that of the 9600AE, Felling said. "Rolm was at a real disadvantage because it couldn't bid for large accounts that needed at least one large PBX." The older CBX II 9000's Rolmbus

295, which the 9600AE also uses, had "enough bandwidth to carry the transactions but the 9000 didn't have a powerful enough processor," he explained. "The 9600AE does."

'Steadily growing' use

The new product incorporates a more powerful central processor than the CBX II, so it can handle more time slots and transactions for applications such as voice mail, call accounting and automatic call distribution, according to Rolm systems marketing manager William L. Martin. "We find that use of transaction-intensive applications is steadily growing; two-thirds to three-quarters of our customers perform data switching on the CBX, and half to two-thirds use phone mail."

The added processing power also fits the 9600AE for future Integrated Services Digital Network applications, "which we believe will make far more demands on the PBX switch," Martin said.

Existing Rolm PBXs can be field-upgraded to the 9600AE, Rolm claimed.

The CBX II 9600AE handles up to 23,000 time slots in its full 15-node configuration. It costs 3% to 5% more than a comparable configuration of the CBX II 9000. The 9600AE will begin production shipping in September.

Packet switch based on PC

BY ELISABETH HORWITT
CW STAFF

FRAMINGHAM, Mass. — Amnet, Inc. is expected to announce this week a full-function packet switch based on an IBM Personal Computer AT or compatible.

The N7400 is a "backbone-class packet switch" priced between \$6,000 and \$20,000 — one-tenth to one-third the cost of comparable devices, according to Amnet. "We have dropped the point at which private data networks become feasible from a cost-justification standpoint," Amnet director of marketing Peter Thornton said.

The product enables customers to create packet switches out of already installed PC ATs, Thornton said. Amnet is discussing possible OEM agreements with several AT clone vendors, he added. "The user is not stuck with proprietary hardware but can essentially buy a packet switch from IBM, that gets rid of a lot of objections from MIS departments in IBM shops," Amnet senior network consultant J. Michael Hennessy said.

The N7400 incorporates an AT-based version of Amnet's packet-switching software, which features dynamic routing table generation and fault-tolerant network management, according to Amnet. A real-time operating system running under Microsoft Corp.'s MS-DOS allows the N7400s to communicate with one another in order to dynamically reconfigure the network, bypass overloaded or out-of-service links and pass on diagnostic and traffic usage data to Amnet's proprietary network management system.

'Keep it simple'

"It's definitely a good strategy to reach clients that may already be subscribing to packet-switching services and can now justify a private packet net," said Kathryn Korostoff, senior market analyst for research firm International Data Corp. in Framingham, Mass. "The most important thing about the network management system is that it is simple, menu-driven software with nice graphics," she added.

Korostoff predicted that several other vendors would be introducing PC-based packet switches this year. Thornton said he welcomed this. "We still have an 18-month to two-year market window," he said.

The N7400 consists of a PC AT base unit with 640K bytes of memory, supporting up to five Amnet Line Processor Cards. Each card supports up to four 56K bit/sec. ports.



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Rollout blitz expected as vendors converge at Comnet

WASHINGTON, DC—More than a hundred vendors will introduce products at the ninth annual Communications Networks Conference and Exposition (Comnet) that opens here today.

Among the offerings will be the following:

- **Tellabs, Inc.** will unveil a family of products in its Crosnet System—a T1 switching system for local and distributed T1 networking. It includes multiplexing input from up to 128 data, voice or compressed video channels on the T1 facilities and provides intelligent DS1-level switching for up to 16 T1 links at each node.

- The **Crosnet 440 Network Multiplexer Node** costs \$14,150 for a nonredundant system with channel service unit (CSU), T1 interface and 12 channels of voice or data. A redundant 128-channel system is \$91,200.

- The **Crosnet 445 Network Switching Node** costs \$14,200 for a nonredundant system with a CSU and T1 interface and four DS1 ports. A redundant processor, including 16 DS1 ports, costs \$39,250.

- **Symplex Communications Co.** will roll out its **Datamaster II SDC-4e** and **Datamaster II SDC-5664** data compression units. The SDC-4e, which costs \$4,950, is intended for use on standard voice-grade or digital circuits at speeds from 1,200 bit/sec. to 19.2K bit/sec. It features statistical multiplexing, which allows up to synchronous or asynchronous devices to use the additional line capacity.

- The **SDC-5664**, which costs \$3,500 with redundant power and logic or \$2,000 without, is intended for high-speed circuits operating at 56K to 65K bit/sec. It also has statistical multiplexing that gives the unit a maximum aggregate input of 460K bit/sec.

- The **SDC-5664** can accommodate from six to 24 channels with network expansion cards. The simplest configuration is an SDC-5664 with six channels, which costs \$6,700 without redundancy or \$8,200 with redundancy.

- **Spectrum Digital Corp.** will announce its **Integrated Services Digital Exchange (ISDX)** high-speed T1 multiplexer, which ranges from \$20,000 to \$100,000 per unit. ISDX allows the user to monitor the status of any circuit, port or node. The user can manually intervene to distribute bandwidth, and the ISDX can automatically reroute or seek alternate paths.

- **Systems** range from point-to-point versions that have monitoring capabilities and one port to versions with eight T1 circuits and 512 channels coming from various locations.

- **Case Communications, Inc.** in Columbia, Md., will unveil two feeder multiplexers for its DCX communications processor networks and an asynchronous-to-synchronous protocol conversion module for DCX communications processors.

- The **DCX 833 multiplexer** can be configured with up to 12 asynchronous channels, one Case protocol link module and a single composite transmission line to a DCX 840 or DCX 850 communications processor. It feeds synchronous and asynchronous devices into DCX networks so users can mix communications protocols and link a wider range of computers in a

single network. The starting price is \$3,450. The DCX 842 with an RS-232C interface costs \$2,350 and with a V.35 interface costs \$2,750.

- The **S-Gate** asynchronous-to-synchronous protocol converter serves as a gateway to IBM Systems Network Architecture/Synchronous Data Link Control systems for asynchronous terminal or PC users. It occupies a card slot in a DCX 840/850 communications processor and supports up to 32 asynchronous terminals or printers. S-Gate, which costs \$6,750, emulates IBM 3277 and 3278 Model 2 terminals and IBM 3287 printers. It operates at speeds up to 19.2K bit/sec. in full or half duplex and has RS-232C and CCITT V.24 interfaces.

- **Bridge Communications, Inc.** will announce **Ethernet/3270**, a software package to give high-performance terminal emulation and file transfer capabilities between IBM Personal Computers and the IBM mainframe environment through a local-area network (LAN). It also offers **Digital Equipment Corp.** VT100 terminal emulation and file transfer with ASCII hosts.

- **Ethernet/3270** works on PCs equipped with 3Com Corp. Etherlink or Etherlink Plus network controller boards, which allow direct PC attachment to an Ethernet LAN. It costs \$400 for a single-user version for a stand-alone PC and \$2,000 for a network-server, multiuser version.

- **TRW Information Networks Division**, a division of TRW, Inc., will show the **Advanced Connector Unit (ACU)**, a communications server based on a Motorola, Inc. 68000 processor with 512K bytes of memory, and the **Operating System Connection** to TRW Concept 2000 line of broadband, baseband and PC LAN products. Both feature support for Transmission Control Protocol/Internet Protocol.

- The **ACU** is available in two-, four- and eight-port configurations and includes an Ethernet interface. Customers can select alternate interfaces such as various broadband, fiber or star-configured networks. The ACU costs from \$1,695 to \$2,395 based on configuration and will be available in the third quarter.

- The **Operating System Connection** is a vendor-independent networking software package for interconnecting different processors, operating systems, network hardware and network protocols. The product costs \$395 for IBM PCs and up to \$9,000 for large DEC VAXs. It will be available in the second quarter.

- **Western Union Corp.** will introduce **Easynet** electronic mail service enhancements. One addition, **On-Line Conversation**, permits real-time exchange of messages or documents among subscribers. Also to be announced are features that allow users to determine if recipients have read messages and to track incoming and outgoing messages. **On-Line Conversation** costs 55 cents for each minute used, with a 30-sec. minimum usage charge.

- **This report was compiled by Computerworld staff members Elisabeth Horvitz, Donna Raymond and Patricia Kerfe.**

THE CAMBEX 3090 ALTERNATIVE

Preserving corporate resources - it just makes good business sense. That is why many mainframe users are retaining the 308X system and upgrading main memory instead of changing to a 3090.

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Xerox aims to gird Ventura publishing line

BY ALAN J. RYAN
CW 11/07

ROCHESTER, N.Y. — Xerox Corp.'s announcement last week of seven Microsoft Corp. MS-DOS personal computer-based desktop publishing systems will reinforce the market strength of

Ventura Publishing Edition software, according to industry watchers.

The Xerox Desktop Publishing Systems (XDPS) Models 601 through 607 are composed of Xerox personal computing, software and printing products.

Each offers as its centerpiece the Xerox Desktop Publishing Series: Ventura Publisher Edition, Xerox's desktop publishing software for PCs. The hardware and software are combined in seven different packages.

The announcement is one an-

alysts said they had been expecting to hear.

Selling the desktop publishing software through an exclusive worldwide distribution agreement with Ventura Publishing in Morgan Hills, Calif., was not all Xerox hoped to accomplish.

"Obviously, Xerox would like to use their marketing agreement with Ventura as a pull to sell IBM Personal Computer-compatible PCs and printers," said consultant Amy Wohl, president of Wohl Associates in Bala-Cynwyd, Pa.

"We think that it is the desire of a significant part of the marketplace to buy desktop publishing products as part of an entire turnkey system. Therefore, it's important for Xerox to offer its product as part of the system," Wohl said. For Xerox, the systems packages will mean enhanced revenue while satisfying customer demand for complete bundled packages.

The Xerox personal computer products available for use in XDPS include the Xerox 6065 PC equipped with a 20M-byte rigid disk drive and 640K bytes of random-access memory; personal computer or word processing keyboard; an optical mouse; full-page, partial page or color monitors; MS-DOS operating software; Xerox Writer III word processing software; and Xerox Ventura Publisher. XDPS printers include the Xerox 4020 color ink-jet printer and the 4045 Model 50 laser printer and copier configured with 1.5M bytes of memory.

'A prior investment'

"Some packages contain all of the components necessary to set up and run a publishing operation," said Larry Spelhaug, marketing manager for Xerox Information Systems. "Others contain a subset of components and are based on the user having a prior investment in industry standard equipment, such as a PC or printer."

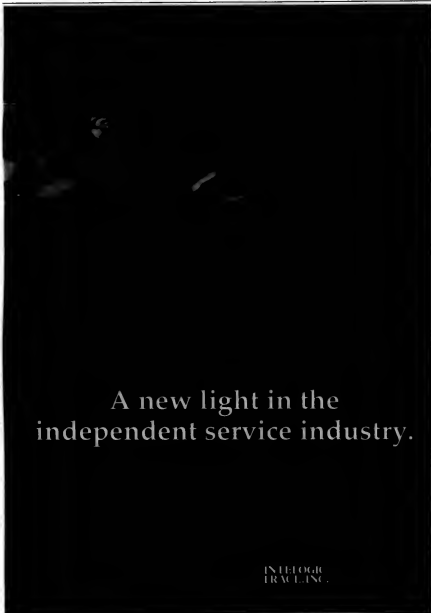
The differences in the seven packages "are based upon the user's existing system configuration and the various needs he has for desktop publishing," a spokeswoman for Xerox explained. Users can also select color or black-and-white printing and partial or full-page display.

Xerox said it treats the XDPS family as complete products from order entry to delivery to service. Users of the complete system can rely on a single vendor for support, and users of partial systems can purchase Xerox service arrangements that cover both Xerox and non-Xerox products.

"Xerox introduced Ventura last fall," said analyst Arlene Karsh of CAP International, Inc. in Marshfield, Mass. "I understand it's a really hot product, and shipments are quite good."

She said her company feels the software is a benchmark product because it sets a new performance level for what desktop publishing really means.

Prices range from \$9,995 for the fully configured Model 601 to \$2,195 for the partially configured Model 607. Deliveries begin in mid-February.



A new light in the independent service industry.

INTELOG
TRAC LINE

Site license, discounts seen for Q&A users

BY PEGGY WATT
ON STAFF

CUPERTINO, Calif. — Symantec Corp. will this week announce a corporate support and site licensing policy, which has already met with approval by some early takers who appreciated getting credit for earlier purchases.

The policy gives volume discounts that average 40% of suggested retail prices and site licenses that start with a minimum of 150 units, counting a customer's existing copies, said Rod Turner, executive vice-president for sales and marketing.

Discounts for large numbers of copies are negotiable, according to Turner.

Besides their product Q&A, Symantec's policy includes the several utility products for Lotus Development Corp.'s 1-2-3, marketed by Symantec subsidiary Turner Hall Publishing, and the project management program Time Line and

Time Line Graphics from Breakthrough Software Corp., which Symantec recently bought, Turner said. The customer can mix the products under a single license and receive the site license discount.

Sales go through approximately 30 corporate account dealers throughout the country, which share support duties with Symantec, Turner said. The support plan includes a toll-free hot line, classes for corporate trainers, one-stop upgrades and rights to beta-test future products. It costs \$5,000 yearly, less with a volume purchase.

"It's a great convenience," said an

MIS manager for a transportation firm that already had several hundred copies of Symantec's Q&A data base in offices around the world and bought nearly 100 more under a new site license.

"I wouldn't normally have purchased more," he continued, "but the site license gave us discounts for more copies."

Site licenses a selling point

"There's more interest in site licenses, and this policy really hits the button," said Scott Reynolds, sales representative with Macro Solutions, Inc., one of the distributors that handle Symantec's program.

He said it prompted Schlumberger, Ltd. to pick up nearly 300 more copies of Q&A, after trying a few dozen.

Schlumberger also bought nearly 100 copies of 542E, an add-on product for network use, according to Patsy Zurovec, a Schlumberger systems administrator.

"We're small fish among corporate accounts," Turner said. "We're trying to be realistic and convenient to deal with."

He said Symantec hopes to boost its share of corporate customers, which now accounts for approximately 25% of all product sales.

Symantec had planned to announce a corporate licensing program six months ago but postponed it after a lukewarm response from some customers, Turner added.

4GL revved up in Germany

BY ANDRE EISENSTEIN
SPECIAL TO ENR

DARMSTADT, West Germany — Structured programming and array processing are two of several improvements in the latest version of Natural 2, a fourth-generation language that was developed by Software AG in West Germany.

The language offers a structured programming mode and occupies 40% less CPU space than the earlier version, according to the developer.

Program transfer and initialization time has reportedly been cut by about 80% from the previous version of the product.

Independent applications

Natural 2 applications, like those written in the earlier Natural language, are said to be independent of operating systems, teleprocessing monitors, data base techniques and data storage locations, thereby reducing the time required for maintenance and adapting applications, a company spokesman said.

The product allows access to Software AG of North America, Inc.'s Adabas, IBM VSAM and IMS files and DL1.

An interface to IBM's DB2 will soon be available, according to the company.

IBM, DEC compatibility

Natural 2 can be implemented with IBM operating systems as well as with Digital Equipment Corp.'s VMS, spokesmen said.

Natural 2 will be available in Europe in March.

Software AG of North America, which is headquartered in Reston, Va., is slated to make a mid-March announcement that it will offer Natural 2 for delivery sometime in May.

The company expects to report a revenue growth of about 30% worldwide and 60% in Europe for 1986.

Eisenstein is a writer at *Computerworld* Schwarze, a CW Communications Group publication.



EDITORIAL

Do you hear Bells?

If initial reactions mean anything, the U.S. Department of Justice recommendations to free the divested Bell operating companies of most regulations are going nowhere fast. On one side of the issue are the seven regional holding companies, the Reagan administration and its agents. Seemingly outgunning them, on the other side, are consumer groups, large-user groups, the Bell's competitors (of course) and every politician in search of a cause.

No matter what, the final outcome of this deregulation matter must be kept as apolitical as possible.

Interested parties should insist that the time-honored system of checks and balances be enforced and that the desires of the executive branch, which can change radically every four years, not be the overriding influence on decisions that will have such enduring impact.

Some governmental regulation will remain — must remain — a part of our national communications system, regardless of how the Bells are allowed to conduct other businesses. For purposes of national security and to ensure an orderly flow of business, a seamless network based on sound standards must be maintained.

Any arguments that the Bells or any of their competitors can be self-regulating in this regard should be carefully scrutinized, then dismissed. Witness the recent charges leveled by telecommunications users that the Bells have refused to cooperate with their customers to develop and standardize basic service offerings under Open Network Architecture.

Judge Greene has acted prudently in lifting the regulatory veil on AT&T as competition has crept into the long-distance world in the last three years. The same approach should be taken regarding the Bells.

Yes, the Federal Communications Commission requires the Bells to provide competitors equal access to local nets by way of ONA rules.

But ONA is a largely untested concept. The potential for abuse is enormous and enormously tempting. With hundreds of millions in profits pouring in from the local-loop monopoly, the Bells could brook substantial losses in other businesses while they build market share with temporarily depressed pricing. Consider the apparent losses some of the Bells have rung up in the computer store business. Where did the funds come from that paid those losses? And whether anyone can compete with the Bells in the local loops is an even broader unanswered question.

There are no good arguments against policies that foster increased competition. Despite some major headaches in the early years of the breakup of AT&T, there will be more companies providing a broader range of communications equipment and services much more efficiently than if one company were doing the job.

However, deregulation of long-standing, regulated monopolies needs to be a gradual, carefully monitored process, not a knee-jerk reaction motivated more by political dogma than common sense.



LETTERS TO THE EDITOR

The future of the Mac

John Kirkley's article, "Friendly vs. forward-looking: The Mac and AT square off" (CW, Dec. 22), fails to present a complete picture of the Macintosh's capabilities, vis-a-vis the battle against future DOS machines.

The problem lies in presenting only future promises for the Microsoft Corp. MS-DOS world. The Macintosh world has similar products on the way, and its development is no less forward-looking than that of the IBM Personal Computer ATs. Even before Apple Computer, Inc. introduces its own line of Motorola, Inc. 68020-based machines that are equivalent in computing power to Intel Corp. 80386 machines, current Mac owners can buy 68020-based boards for the Mac Plus from at least four vendors.

You get all this extra power without sacrificing the graphics interface or the monitors also available for desktop publishing and computer-aided design and manufacturing applications. Just as new graphics boards are just over the horizon, so, too, are similar boards using the T1 graphics chip for Apple's new Macintoshes.

And what is the definition of a closed operating system? Is the Macintosh's operating system any less accessible than MS-DOS? It certainly hasn't prevented developers from writing programs to do anything they desire on the Mac.

As for the comment about "sophisticated work," computer-aided design is a reality on the Mac as well as the AT, and it doesn't divorce the user from the Mac's interface; in fact, it can benefit from it.

The future for new Mac-

intoshes that rival any PC for computational speed and ease of use is just as bright and promising as anything any PC wits forecasts for his own machines.

David R. Korier
Fullerton, Calif.

Apple applause

This is just a quick note to applaud William Zachmann's column, "Time to take Mac seriously" (CW, Dec. 1), about the Apple Computer, Inc. Macintosh computer. The Mac is an impressive, innovative machine that your publication has paid relatively little attention to until now.

Perhaps now I, and others, can look forward to reading more than just the occasional review of Macintosh hardware and software in future issues of *Computerworld*.

A. J. Embelin
Upperville, Va.

Language factions

I must take exception with one comment made in Fabian Pascal's Reader's Platform, "The Distinction between 4GL and Relational Environments" (CW, Jan. 12).

His basic premise, that there is a clear difference in meaning between "relational" and "fourth-generation language," is correct. However, his parenthetical comment that, "there is only one relational language, IBM's SQL," is incorrect. There are, in fact, other relational languages, the one with which I am most familiar being Relational Technology, Inc.'s QUEL.

QUEL was originally developed by Michael Stonebraker and others at the University of California at Berkeley for the relational DBMS Ingres. Since

then, of course, Ingres has evolved into a full commercial product, supporting both QUEL and SQL. Anyone who has used both of these languages will say that not only is QUEL a relational language but also that it is far superior to SQL.

Unfortunately, because of IBM's industry dominance, even Stonebraker admits that SQL is destined to become the "intergalactic standard" of relational languages.

Barry Randall
CIM Financial Analyst
Aircraft Engine Group
General Electric Co.
Lynn, Mass.

This week in history

Feb. 14, 1983:

Crocker Bank in San Francisco tests the feasibility of automated teller machines. Bank officials say the new concept was designed to expand service and convenience, reduce customers' waiting times in lines and hold down rising costs.

The Semiconductor Industry Association releases a document that it says includes "irrefutable" proof that U.S. chip makers have been seriously harmed by an unfair and illegal Japanese government program to protect and support its native semiconductor industry.

The report says a closed Japanese market and Japanese support of its firms' exports violate international trading treaties.

Talking back to computers

HARRY NEQUIST

Remember Doctor Doolittle's song, "Talk to the Animals"? Well, today we are going to do a couple of choruses of "Talk to the Computers."

The ability to talk to machines is nothing special. I bet most of you do it. However, getting the computer to answer is a whole different story, requiring an incredible amount of technological wizardry that is currently known as voice recognition.

Voice recognition is actually a fairly simple concept in which the voice is used to control a computer or terminal in much the same way a keyboard does. There are a number of ways to address this problem, such as creating software that replicates the way the ear works or developing a system that digitizes and stores voice patterns.

The most common form of implementation is essentially a pattern-recognition approach. The user trains the machine by speaking words into a microphone. The words are then digitized and stored on a disk. After storage, the user assigns a keyboard command to the words he just input. For instance, one might enter the word "Finish" and then input the "F10" key as the command to be triggered.

Sounds easy enough, right? Wrong. If it were that easy, keyboards on everything from Sealed Air Commodore would be doing a current tour of duty as paperweights or postmoderns of office art. So let's talk about some of the problems inherent in voice recognition and why keyboards are still working for a living.

First, no two voices are exactly the same. Thus, a digitally stored pattern of your voice is not going to find a perfect match if someone else utters the words you have stored. The result is that either no command is issued or the computer tries to guess which word was stored and would be appropriate. Not very efficient.

Second, even a single individual has voice pitch and timbre variations at different times of the day or during periods of stress. A classic story from the voice-recognition world tells of a researcher who developed a voice system with an incredible accuracy rate. The researcher toiled alone for years to achieve this feat. So impressed were his supervisors with his accomplishment that they asked him to demonstrate the machine at the

company stockholders' meeting. When the fateful day arrived, the researcher faced some 800 stockholders from behind the podium, the first time he had ever addressed a crowd of more than three. The pitch of his voice rose about three octaves and cracked on almost every word. The machine's accuracy level over the course of the abbreviated demonstration? Zero.

Regardless of the veracity of this tale, it illustrates a key point in voice utilization. If the machine is not going to be 100% accurate, why worry about using it at all when keyboards already operate at that level?

There are plenty of arguments for the use of voice recognition. For a start, the voice is a much more natural interface than a keyboard. It is also useful in situations classified as hands-

VOICE-recognition technology has proven itself primarily because the domain is limited and is usually operated by the same person each time.

free. These are primarily industrial applications, such as inventory-part counting, quality control and inspection and manual package routing.

In these examples, it is important for the user to concentrate on the actual touching or holding of something. Thus, any time diverted to the keyboard for input is inefficient and slows down the overall process. Also, use by the handicapped is increasingly important, as voice-recognition systems allow for control of systems that might otherwise need to be physically manipulated.

In the above instances, voice-recognition technology has proven itself, primarily because the domain is limited to defined terms and the technology is usually operated by the same person each time, often in a fairly controlled environment. A variety of companies — from specialists like Votan Co., Scott Instruments Corp. and Dragon Systems, Inc. on to larger companies like Texas Instruments, Inc., Digital Equipment Corp., Trol-Gould, Inc. and Lanier Business Products, Inc. — is finding a wealth of opportunities in specialized areas.

Voice recognition sounds ideal for controlling the mundane requirements of the office, such as data base queries and word processing. A number of companies are addressing the of-

fice area with machines called VATs — voice-activated text systems. The best quality of the typewriter (or its equivalent) is combined with the best of dictation machines (voice control and minimal hand operation) to make — voila! — a VAT.

Sounds good to me but not so good to computers. For any given office application, the machine would have to possess a precise vocabulary of at least 5,000 words, with an average of about 9,000 to 12,000. Attempting to store that many words would be a Herculean task for any memory, especially ones typically found in office systems.

The companies working on VATs are employing various technologies to help eliminate the need for brute vocabulary storage. Kurzweil Applied Intelligence, Inc. uses artificial intelligence techniques to help the system determine a word by its context within a given phrase, sentence or paragraph. Kurzweil's claims to fame include an optical character reader for the blind and a superb electronic synthesizer that duplicates the sound of acoustic pianos. Despite these accomplishments, Kurzweil didn't deliver on its promise of a 15,000-word VAT by the end of 1986.

Speech Systems has plans for a VAT with a twist. Instead of using a handheld microphone to communicate with the machine, the user employs a microphone designed to be a telephone handset. Speech Systems uses artificial intelligence techniques that deal more with generated sounds than contextually appropriate words.

And last, but not least, there is IBM. During 1986, IBM developed a VAT developed at its Watson Research Center. The Tangora system boasted a 20,000-word vocabulary but was painfully slow in displaying the transcribed words after they had been spoken. (Tangora, by the way, is named after Albert Tangora, the world-record holder for speed typing, with 147 words-per-minute to his credit. And you thought that IBM didn't have a great sense of humor.)

Before you decide to give everyone in the secretarial pool access to their own voice-activated machine, consider the social implications. Right now, 20 to 30 people can type away in the same room without really disturbing each other, because the clacking of keys becomes an innocuous drone. Now picture that same office scene with 20 to 30 people talking OUT LOUD to machines. Imagine the confusion of people talking to each other, to themselves, to the phone and to their machine. You are imagining pandemonium.

Profits put first put people out to pasture

Employees are assets not disposable commodities

JOHN L. KIRKLEY



"People are the key."

It's a slogan that sounds uncomfortably corny, one that rings a little hollow in today's tough-and-tumble computer industry, an industry characterized by corporate takeovers, massive layoffs and forced early retirements.

But when John Linby became president of an aging Management Science America, Inc. (MSA) nearly 15 years ago, he included "People are the key" as a daily operating principle in his long-range plan to resuscitate the company. He and his managers even wear miniature keys in their lapels to remind them of this fundamental commitment. It has worked. MSA has had its ups and downs, but it is not still only well, but also doing well.

There seems to be a different operating principle at most U.S. corporations. The slogan has been rewritten: "Short-term profits are the key." Corporate management's obsession with the little dollar signs in their lapels. People, like personal computers, have become a commodity item, and like most commodity items, they are disposable.

Much has been said about corporate America's short-sightedness, its emphasis on quarterly profits, its compulsive need to please fickle stockholders and quaternals Wall Street analysts. What I am concerned about is the negative impact of cold and opportunistic corporate behavior on individuals and their relationship to one of the fundamental human activities: meaningful work.

Obviously, it's difficult to feel loyalty to an organization that may try to force you into early retirement at the first sign of a profit crunch. AT&T, a haven for careerists, is decimating its ranks. Even the sheltering arms of IBM have lost their moral security. Still holding steadfast in its no layoffs policy, IBM has turned to early retirement. No one is exempt. In January, two of its top managers, Senior Vice-Presidents Don Phypers and George Beitzel, chose early retirement during the company's three-month consecutive period.

What happens to all these talented men and women in their fifties who suddenly find them-

selves on the outside looking in? The January 9 edition of *The Wall Street Journal* commented, "Retirement forces people to come to grips with what is important in their lives. Early retirement, whether by choice or not, is forcing thousands of managers in their mid-50s to early 60s to face the issue more abruptly, while they are still young and healthy enough to resist a career interruption — or to realize a dream."

What's really happening here? The fact is that companies are losing valuable people who are, in most cases, talented, experienced and may even possess that rare commodity that only living on the planet for a goodly amount of years seems to bring: a modicum of wisdom. In the short run, the corporation saves money. In the long run, the corporation loses irreplaceable assets: knowledgeable, experienced and loyal employees.

Baby-boomer bulge
And what about the individual retires themselves? Most have to find other ways to pay the mortgage and keep the kids in college. However, over the age of 50, one becomes almost unemployable. That enormous bulge of baby boomers (now 30.9% of the population) has matured, and these aging youngsters (aged 25 to 44) are fighting tooth and nail for every available managerial slot.

(They had better be careful. Soon corporate America may regard anybody over 40, to paraphrase Kipling, "in the dusk with the light behind them." After all, why hire someone in their mid-forties when you'll probably early retire them in five years or so?)

And the ancient ones, the over-50 crowd? Many become consultants, working 60 to 80 hours a week, learning the joys and terrors of erratic cash flow.

Perhaps all we over-50 ex-corporate managers should form a junior version of *The Gray Panthers*. We'll call it *The Pepper-and-Salt Panthers* and limit membership to veterans of the corporate wars between the ages of 50 and 64. We'll hand to gether, begin our own businesses, hire each other and build a new work ethic led by middle-aged entrepreneurs who wear little keys in their lapels and believe in what the emblem symbolizes.

If we're successful, in time perhaps even the most callous of the quarterly oriented, grab-it-while-you-can corporations might correct their myopia and realize that people count as much as profits.

Nequist writes and consults on artificial intelligence and other advanced high-technology topics from his office in Scottsdale, Ariz.

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SOFTWARE & SERVICES

SOFT LINE



Carole Morton

Rounding off square wheels

Once there was a wagon maker. Everyone came to him to buy wagons because he built them well and because they were the best wagons in the kingdom.

To no one's surprise, he also built most of the wheels because they fit his wagons better than anyone else's.

But his products had one minor flaw: The wheels were square. This was a problem for his customers because they were left with the task of purchasing the tools to make the wheels round. The wagon maker didn't bother to make the wheels round himself because it took extra time and resources.

The demand for rounding tools created jobs for toolmakers. Soon, much of the kingdom's success depended on the wagon maker's success.

IBM makes square wheels for its wagons — its mainframe computer line. When IBM announces a major new software product, it invariably delivers a quality package that everyone

Continued on page 23

Tool monitors IDMS changes

BY CHARLES BABCOCK
CW STAFF

WESTBORO, Mass. — A software product named Endeavor-DB is said to impose change control on the application development environment of Cullinet Software, Inc.'s IDMS/R and ADS/Online.

The product is available from a start-up company founded by former Cullinet executives. Business Software Technology, Inc. (BST) in Westboro, Mass., has also purchased a larger, MVS control product, Control-1, developed at Empire Blue Cross/Blue Shield in New York by Condo Technology, Inc. Control-1 has been renamed Endeavor-C1.

Although the two stand as independent products, BST's intent is to tie them together so that changes to programs in both the development and production environments can be automatically tracked and controlled by MIS managers.

The first integration will be available in 60 days, according to Nick C. Rini, BST president and former vice-president of software development at Cullinet. The new product, Endeavor-DB, is designed to work in conjunction with the popular development language, ADS/On-line and the IDMS/R data base management system's Integrated Data Dictionary, Rini said.

Endeavor-DB stores all changes to a developing application in a change control data base. The changes are logged with information concerning who made them, when and why.

The \$57,500 product intercepts ADS/On-line requests to the dictionary and logs them before sending them on to the dictionary.

Continued on page 23



John F. Burton

SOFTWARE NOTES

Relational tops the list

IMS is still at the top of the list of data base management systems, according to a survey of 310 major companies in the U.S. by Troy State University in Troy, Ala.

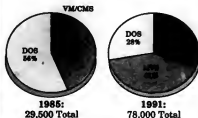
But many respondents have purchased a relational DBMS, and 90% indicated students should be taught the relational model.

"The survey indicates relational is the DBMS of the future," said James Walton, the business professor who conducted the survey.

Continued on page 20

Data View

IBM operating system usage
During the next five years, the number of licenses for IBM mainframe operating systems will grow 165%



INFORMATION PROVIDED BY THE GARTNER GROUP, INC.
CW CHART: MITCHELL J. HAYES

Designer taps VAX

Integrated tools aid
software development

BY ALAN J. RYAN
CW STAFF

PROVIDENCE, R.I. — A line of computer-aided software engineering (CASE) products will soon be available for Digital Equipment Corp.'s VAX/VMS processors.

Spokesmen for Cadre Technologies, Inc. said the firm's Teamwork products utilize DEC's local-area Vaxcluster system, enabling users to tap the additional performance and storage capabilities of the Microvax II and VAX 700 and 8000 series.

The family includes support for the automation of different phases of the software life cycle, which include systems analysis in Teamwork/SA, real-time systems analysis with Teamwork/

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Inside

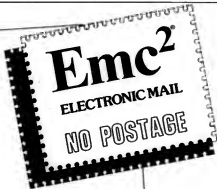
- Performance Software releases a CICS debugging system. Page 20
- Ralph M. Parsons uses Unicom's MicroCICS to set up an employee stock ownership plan. Page 24
- Bennett Software announces Jobtrac system. Page 25.



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Emc2 is a registered trademark of Fischer International Systems Corporation.

Performance tool tracks bugs

BY ALAN I. RYAN
LW 3330P

RICHMOND, Va. — Performance Software, Inc. has announced Track, Version 3.1, a CICS-driven monitor and interactive debugging system that analyzes a program prior to its execution and displays an error condition.

The program provides functions to assist the programmer in determining the cause of the error and facilitates an on-line, interactive correction of the problem, the vendor claimed. Users go step by step through a program to follow its logic, and Track is said to pinpoint errors on the

screen. Cobol and PL/I source code can then be displayed along with the data files. Corrections are made interactively, then the execution of the program continues, vendor spokesmen said.

"I've found it pretty easy to use, especially in the CICS environment. Some of the other models I tried to use tended not to be flexible enough," said Phil Scanlon of Fountainhead Systems, Ltd., a software development company here.

Multiple errors can be examined and resolved in one execution of the program, and users do not have to wait to resubmit the program for additional compiles, do-

ing more testing and looking at more dumps, the vendor said.

"I would have hated to try to do some of the debugging we did without it," Scanlon remarked.

He said the only problems he has had with the program were in earlier versions when the software was too protective at times and would not perform certain functions that did not go through CICS. "Now it has force commands to tell the program it is OK to do it," Scanlon said.

Track can also be used to monitor any specific program running under CICS. It protects CICS from transactions causing table-storage violation, thus preventing CICS crashes, the vendor said.

It is available for both IBM DOS/VSE and MVS at a price of \$4,995.

Notes

CONTINUED FROM PAGE 19

IMS was used by 34% of those surveyed. IBM's Systems, Inc.'s Total and IBM's DL/I and Development Management System were used by 12% each; IBM's DB2 was used by 9%; and IBM's SQL/DS and Cullinet Software, Inc.'s IDMS/R were used by 7%.

When asked what data model they would use in selecting a DBMS, 85% indicated relational, 7% hierarchical and 3% network.

IBM inadvertently or otherwise fanned expectations that a new release of DB2 will be out soon in its Jan. 26 announcement of a revised buffer search algorithm. When asked how the enhancement would be delivered to DB2 customers, an IBM spokesman said, "no decision has been made" on whether it will be delivered via an upgrade tape or in a new release.

Relational Technology, Inc. and Panaphic Systems, Inc. have teamed to develop an IBM MVS version of Relational's Ingres relational data base management system to run under IBM's CICS and TSO. Panaphic will have the right to use the DBMS in its product line.

On-Line Software International in Fort Lee, N.J., has renamed and repriced Ramia II, the information center data base management system it purchased from Martin Marietta Data Systems, Inc. The product will be marketed as the Ramia Information System and, instead of being sold as components, will be sold as a package for \$49,000 to IBM DOS users, \$88,000 to VM users and \$115,000 to OS users.

The National Systems Programmers Association in Milwaukee is launching *Technical Support Magazine* to publish articles from its members addressing concerns of MVS systems programmers and communications analysts. Dues are \$45. Contact P.O. Box 21525, Greenfield, Wis. 53221.

Information Builders, Inc. is reportedly preparing to offer a distributed data dictionary for distributed versions of its Focus data base management system, observers of the New York firm say.

Culler Scientific Systems Corp. in Santa Barbara, Calif., says it will introduce this month an expert system-based compiler that garners a 50% improvement in the performance of its parallel architecture supermainframe, the Culler PSC. The compiler examines a sequence of Fortran statements, comparing them with the best possible execution times if perfect code could be written, then uses a knowledge base to search for the best code sequences, Culler spokesmen said.

Oracle Corp. has announced a flurry of agreements. Its relational data base management system will be marketed by Altos Computer Systems, Inc. on its supermicros, and NCR Corp. will market Oracle on its Tower Unix supermicros. Oracle will also be available on Plexus Computer Corp.'s Plexus P/Series Unix supermicros, Sun Microsystems, Inc. Unix workstations and Sequent Computer Systems, Inc.'s Balance 8000 and 210000 multiprocessor lines.

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NEW
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National Database and 4th/5th Generation Language Symposium

San Francisco, March 23-26 Washington, D.C., April 21-24 Toronto, May 12-15

Dear Colleague,

The 4th Generation of software has become accepted as the best approach for developing applications. The combination of relational database management systems, integrated dictionaries and English-like programming languages has drastically reduced development time.

However, many are lagging behind in switching to 4th Generation technology because they do not fully understand what the technology entails and what is compatible with their current system. If they have already made the switch, they may not have all the appropriate components nor know how to maximize their system's potential. Buyers must become more knowledgeable. Failure to take advantage of available information is a mistake which can only cost more in wasted time, effort and money as time goes on.

It is your right as a buyer to expect a system to perform as advertised, but it is also your responsibility to become an EDUCATED buyer! You should know what you need, why you need it, which systems offer it, and finally, what you can realistically expect from a system once it is in place. By attending the National Database and 4th/5th Generation Language Symposium you will be able to make the informed purchasing decisions so critical to your company's future.

Our seminars on each day of the Symposium will help you understand the importance of key data management concepts, including 4th Generation software component integration and productivity, giving you the knowledge needed to evaluate and select software products. In addition, products comprising over 90% of the market for database and 4GLs will be presented in one-hour product-specific sessions. These sessions will give you the opportunity to closely evaluate the selected products which will be most beneficial to you. Through these evaluations and the knowledge conveyed in the seminars, the DB & 4th/5th GL Symposium will assist you in developing a comprehensive, workable software strategy.

Sincerely,

Joe Schussel
Dr. George Schussel
President,
Digital Consulting, Inc.



SYMPOSIUM CHAIRMAN
Dr. George Schussel

Dr. George Schussel, President, Digital Consulting, Inc. is one of the best known and most widely respected lecturers on DBMS and 4th Generation Languages. Dr. Schussel will lead the Symposium with the expertise and experience which prompted ICP, INTERFACE, MAGAZINE to call him the "Guru of Data Base Management." Dr. Schussel created the symposium to provide a forum for decision-makers to make objective comparisons among products and keep up with changes in the software field.



Software Institute of America presents
A Digital Consulting, Inc. Conference

1987 National Database and 4th/5th Generation Language Symposium

San Francisco, March 23-26 Washington, D.C., April 21-24 Toronto, May 12-15

THE 4TH GENERATION REVOLUTION

The 4th Generation Languages, relational databases, and related products introduced in the past three years promise a revolution in programmer and end user productivity. In many installations, remarkable success has been achieved in improving both the volume and quality of throughput. These products have been proven in the marketplace as tremendous improvements over COBOL. Combinations of new products can be put together to solve the problems of almost any organization, regardless of size and available resources. Leading-edge companies such as Federal Express, Fidelity Management, and American Express have recognized the profit potential of information systems and through their investment in advanced systems have achieved quality, growth, and profitability that outclass their competition. So why haven't all users migrated to the 4th Generation?

REQUIREMENTS FOR MULTIPLE TOOLS

In the Third Generation of software, everyone thought there was one universal language—COBOL. Today, however, many organizations are finding that a full software toolkit is necessary to develop applications successfully. A single 4th Generation language is useful, but far from adequate in many situations. Many organizations are finding that they need several 4GLs for different applications: one product for end user computing, one for top-level decision support, and another for programmers building strategic systems. Meanwhile, in the database area, IBM, Hewlett-Packard, DEC, and other leading vendors are advocating a dual-DBMS approach as the best solution to the broad range of problems faced by today's complex organizations.

These trends mean that MIS departments will be required to purchase and implement an integrated suite of products. Since no single vendor has yet provided the complete range of products, MIS managers must integrate various products themselves. In order to do this effectively, a strong knowledge of both data management concepts and the available database and 4GL products is a necessity. Because of the rapid pace of technological change, even those companies using 4GLs and relational DBMS successfully need to keep up to date with new products in order to fully benefit from the tremendous productivity improvements that are possible. Meanwhile, those companies that took a "wait and see" attitude toward 4th Generation data management products face severe long-term difficulties: still running obsolete COBOL systems, they are unable to exploit the timelier, more accurate tools for decision-making offered by the new technologies. Eventually, archaic systems may cripple these organizations in the competitive environment.

HOW THE NATIONAL DB & 4TH/5TH GL SYMPOSIUM CAN IMPROVE YOUR PRODUCTIVITY

The Spring 1987 National Database and 4th/5th Generation Language (DB & 4th/5th GL) Symposium can address

the needs of both types of organizations. For companies that have not yet made the leap into the 4th Generation, the DB & 4th/5th GL Symposium is an imperative. The first day of educational seminars, designed for both management and technical personnel, provide a sound conceptual framework upon which to base a major purchasing decision while avoiding costly mistakes. The second, third and fourth days feature additional seminars and one-hour technical presentations on all the major database and 4th Generation products, made by trained representatives of the vendor companies. Independent consultants, vendors, and panel discussion participants are all available to answer questions, and many of the products are available for "hands-on" demos. Organizations have saved as much as six to eight months of research by attending a DB & 4th/5th GL Symposium.

"Information was presented without the sales pitch—Great! I am really pleased I attended—this was the best way to find out what software is available for 4GL applications." —W.C. Courance, Crown Forest Industries

For those companies that have already made an investment in high-productivity software, the Symposium offers an opportunity to evaluate new releases, sub-sets and alternatives that can greatly improve their current software investment. In addition, the vendors and consultants present at the Symposium can offer a wealth of free advice to help solve implementation problems, while the chance to trade "war stories" with other attendees and vendors can result in unexpected insights.

"I've had the opportunity to see software I would never have been exposed to and now I have a better basis for decision-making. All the presenters really knew their products and understood the concerns of the marketplace. Dr. Schussel is a wonderful speaker; I enjoyed his insights." —Diane Petrucci, American Cynamid Corp.

"While in that it confirmed pre-Symposium product impressions, honesty from the presenters was refreshing; if their product wasn't suitable for our application, they said so and suggested alternatives."

—Michael Goulet, National Research Council of Canada

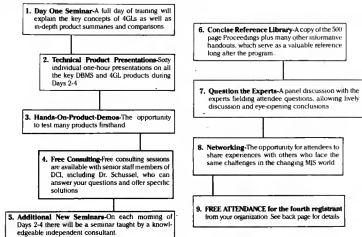
THE DB & 4TH/5TH GL SYMPOSIUM'S GOAL: EDUCATED BUYERS

The format of the DB & 4th/5th GL Symposium is unique. Unlike a trade show, it is designed to educate buyers as well as promote software products. The hall day of seminars on Day One and the morning seminars on Days Two-Four ensure that both management and technical personnel are prepared to intelligently evaluate the products presented on Days Two-Four. Vendors representing over 90% of the DB & 4GL market make one-hour presentations on their products, providing a wealth of nuts-and-bolts technical information, not just sales pitches. The live consulting seminars, hands-on product demos and reference materials provided at the Symposium round out the learning experience. A detailed description of Symposium events appears on the opposite page. The depth and variety of information presented make the DB & 4th/5th GL Symposium a must for anyone who needs to understand the critical trends in data management, both today and in the future.



Bob has expressed some dissatisfaction with the system, sir.

9 REASONS WHY YOU SHOULD ATTEND



THE UNIQUE FORMAT OF THE DB & 4TH/5TH GL SYMPOSIUM

Day One

On the morning of the first day of the National Database and 4th/5th Generation Language Symposium you'll attend a combined management and technical track seminar taught interactively by George Schussel and James Davey. This presentation will provide you with the latest status on concepts and issues of 4th and 5th generation language subjects.

In the afternoon of Day One, there will be two separate product-oriented discussion sessions. Mainframe and related micro products will be covered in one session, while minicomputer and related micro products will be covered in the other session. An intensive discussion will be held on vendor products analyzing the competitive strengths and weaknesses of the different software products.

A discussion of IBM's software strategies and an evaluation of IBM's software products will be held in the mainframe discussion. Likewise, a discussion of DEC's software products and strategies will be held in the minicomputer room.

Days Two-Four

Responding to our attendees' requests for additional education, DCI has restructured the Symposium format for 1987. In addition to the seminars on Day One, there are also seminars in the mornings of Days Two, Three, and Four of the conference.

Day 2 Seminar—Hardware and Software Futures and the 5th Generation of Computer Technology—by Dr. George Schussel, President and founder of DCI.

Day 3 Seminar—Leveraging Application Development Productivity—by Vaughan Merlyn, President and founder, Merlyn Consultants.

Day 4 Seminar—Corporate Connectivity—by Larry DelBoever, Vice President of DCI.

During the afternoon on Days Two-Four you will have the opportunity to attend one-hour product presentations on all of the leading database and 4th Generation Language products. Four presentations run concurrently during each hour and you may move between presentations as you wish. Many companies send more than one attendee to the conference in order to get the maximum benefit from the presentations.

Consultants from Digital Consulting will be available to answer your questions and direct you to the right presentations. Whether you are in the selection or implementation phase, they can provide free expert advice to help answer your particular questions.

DAY ONE

MORNING SEMINAR

George Schussel, President and founder of Digital Consulting, Inc. and James Davey, DCI's Senior Research Associate, present a combined seminar program on DAY ONE of DB & 4th/5th GL. This interactive, fast-paced presentation features multiple projectors and screens and communicates an enormous amount of technical and management information within a one-day period. In the morning,

you will learn all of the major 4th generation concepts. In the afternoon the discussion will move to a review of the software marketplace, the positioning of different software vendors and a comparison of DBMS, and 4th & 5th GL products. The advantages and disadvantages of using each company's products will be covered.



DR. GEORGE SCHUSSEL
SYMPOSIUM CHAIRMAN

Dr. George Schussel, President, Digital Consulting, Inc. is one of the best known and most highly respected lecturers on DBMS and 4th Generation Languages. He received his doctoral degree from Harvard Business School, is a Fellow of the AAAS, holds the CDF, and is on the editorial board of several publications.

Dr. Schussel will lead the Symposium with the expertise and experience which prompted ICP Interface Magazine to call him the "Guru of Data Base Management."



JAMES H. DAVEY

Jim Davey is Senior Research Associate with Digital Consulting, Inc., specializing in database management systems, logical database design, 4th generation languages and structured analysis and design. He has twenty years of experience in design and implementation of database systems. Before joining DCI, Mr. Davey was Senior Database Consultant with Eastern Technical Associates, manager of Product Support and Assessment for Prime Computer, and Database and Software Support Specialist for Honeywell and General Electric.

SEMINAR OUTLINE

1. 4th and 5th Generation Concepts
 - a. Technical concepts
 - b. Management issues
 - c. The 5th generation of software
 - d. Business systems definition languages (BSDL)
 - e. 4GLs with Computer-Aided Software Engineering (CASE)
2. What is a Database?
 - a. Structured
 - b. Value-based DBMS
3. Different Types of DBMS
 - a. Structure
 - b. Value-based DBMS
4. Relational DBMS
 - a. Structure
 - Tables
 - Normalization
 - Views
 - b. Integrity
 - Entity integrity
 - Referential integrity
 - Database specific integrity
 - c. Manipulation
 - Relational algebra
 - SQL
5. Normalization
6. Relational Integrity
 - a. Entity integrity
 - b. Referential integrity
 - c. Database-specific integrity
7. The Management Implications of Using Relational Databases
 - a. Higher productivity
 - b. More data independence
 - c. Better integrity
 - d. Better performance in certain conditions
8. The Truth About the Relational "Performance" Problem
9. What Are "Born-Again" Relational DBMSes?
10. DBMS Standards
 - a. Network data language
 - b. SQL Standard
11. Problems with SQL
12. What is the Meaning of SQL as a New Standard
13. The Single vs. Dual DBMS Strategy
14. Transparency Conversion, or "How to Get There from Here"
15. Distributed Database Issues
16. Micro-to-Mainframe Links: Their Advantages and Problems
17. 4th Generation Languages: How to Evolve to the Next Generation
18. Different Types of 4th Generation Languages
19. How to Categorize and Compare 4GLs
20. 4GLs: Performance vs. Ease of Use
21. Prototyping
 - What is it?
 - Why is it needed?
 - How to do it?
 - When to use it and when it doesn't work
22. The Management Implications of Using 4GLs
 - a. Can 4GLs be used on complex projects?
 - b. The need for data-driven design
 - c. Why novices may be better than experienced programmers with 4GLs
 - d. Computer resource utilization with 4GLs
 - e. How the use of 4GLs affects the turnover of your programming staff

DAY ONE

AFTERNOON SEMINARS

SEMINAR OUTLINE

George Schussel

Mainframe Software and Associated Micro-Products

1. **IBM's Database and Programmer Productivity Aids**
 - a. How well has IBM done in software products?
 - b. A review and forecast of the total installed base of IBM mainframe compatible DBMS
 - c. An evaluation of IMS and DL/I
 - d. Choices for the IMS, DL/I-user
 - e. SQL and DB2 IBM's relational products
 - f. An evaluation of DB2 against Codd's rules
 - g. Software to complement DB2
 - h. The costs of using IBM software
 - i. Performance implications of DB2
 - j. Discussion of benchmark results
 - k. User surveys of DB2 and SQL/DS
 - l. Likely DB2 Futures
 - m. IBM's application development tools
 - n. What is CSP?
 - o. Evaluation of CSP
 - p. What CSP is missing
2. **Integrated Development Software for Mainframes**
 - a. Cincom/SUPRA
 - b. Cullinet/IDMS/R
 - c. ADR/DATACOM
 - d. CCA/2H
 - e. Software AG/ADABAS
 - f. Mitrol/METROL
 - g. Computer Associates/UNIVERSE
 - h. Oracle/ORACLE
 - i. RTI/INGRES
3. **Programmer 4GLs (for mainframes)**
 - a. Martin Marietta/CONSYST
 - b. Cincom/MANTIS
 - c. McCormack & Dodge/MILLENNIUM
 - d. MSA/INFORMATION EXPERT

4. COBOL Generator/4GLs

- a. CORVET
- b. FACBASE
- c. ACCOLADE
- d. INTELLIGENT ASSISTANT
- e. APS
- f. GAMMA
- g. TRANSFORM

5. Database Machines

- a. Teradata
- b. Britton-Lee

6. Evaluation and Discussion of End-User Software

- a. Decision support systems such as Lotus 1-2-3, System W, BPS, APS
- b. PC-oriented tools such as ICMS/Goldengate, PC/FOCUS
- c. Information Center Software such as AS, RAMIS II, NOMAD2, FOCUS
- d. English language products such as INTELLECT, ENGLISH, and ASH-INQUIRY
- e. Query languages like ASH-INQUIRY

7. Design Aids and Tools

- a. CASE-oriented products like KNOWLEDGEWARE
- b. Graphical-design oriented products like TIP
- c. DBMS Extensions, NORMAL and DATADESIGNER
- d. Data-driven design tools, like FACETS and DATA CATALOG2
- e. Report-writer tools like IMAGINE and ASH-INQUIRY
- f. Workbench development products from DIALOGIC, CCA and ADR

8. Non-370 Mainframe Products

- a. Honeywell, NCR, Burroughs, Sperry

SEMINAR OUTLINE

James Davey

Supermini and Micro Software

1. Supermini Hardware Vendor Software

- a. Digital's VAX, RLI, RALLY
- b. Hewlett Packard/IMAGE and HP/SQL
- c. Data General/DG and SQL
- d. Wang/FACE
- e. Concurrent Computers/RELIANCE PLUS
- f. Prime/PRIMEWARE and INFORMATION
- g. Others

2. Supermini Integrated DBMS and 4GLs

- a. Mainframe Products
 - Cincom/ULTRA
 - Software AG/ADABAS/NATURAL
 - Jako, Builders/FOCUS
 - Others to come

b. Relational Pioneers

- Oracle/ORACLE
- RTI/INGRES
- c. Other Contenders
 - SCI/INFOCEN
 - Software House/SYSTEM 1032
 - ADM/DRS
 - Logica/RAPPORT
 - Seed/SEED II
 - d. New DBMSs
 - Sybase Inc.
 - GDS/GALAXY

3. Supermini 4GLs and Application Generators

- a. Cognos/POWERHOUSE
- b. Relate/3000

c. Cortex/APPLICATION FACTORY

- d. Henco/INFO
- e. Pro/PRO IV

4. Supermicro (UNIX and MS-DOS)

- a. Informix/INFORMIX-SQL/4GL
- b. Unify/UNIFY
- c. RTI/INGRES
- d. Oracle/ORACLE
- e. DLG/PROGRESS
- f. QNT/SQL
- g. MERB/MSB III, KNOWLEDGEWARE
- h. GURU
- i. dBASE III PLUS
- j. R-BASE 5000
- k. Others

DAYS 2 - 4

MORNING SEMINARS



Day 2 - Hardware and Software Futures and the 5th Generation of Computer Technology

DR. GEORGE SCHUSSEL is one of the world's foremost experts in data base management technologies. He is President and founder of Digital Consulting, Inc., a prominent high technology education and management consulting firm that specializes in software productivity tools and is recognized as the world leader in DBMS and RGLs.

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|--|---|---|
| <ol style="list-style-type: none"> 1. The Future of Integrated Circuit Technology 2. On Switching Speed Limits 3. The Need for Parallel Architectures 4. How the Cost (per MIPS) Compares <ul style="list-style-type: none"> - Micros, Minis and Mainframes 5. Microcomputer Futures 6. An Evaluation of Artificial Intelligence 7. What You Need in AI Software 8. Expert and Knowledge-Based Systems | <ol style="list-style-type: none"> 9. IBM's Approach Toward AI 10. The Future for Office Automation <ul style="list-style-type: none"> a. IBM's approach b. The mini-vendors' approach c. Networks become the backbone d. Distributed databases 11. The Future of DBMS Software <ul style="list-style-type: none"> a. Relational systems b. Network systems c. CASE d. Distributed databases | <ol style="list-style-type: none"> c. Database machines f. Data dictionaries g. The future for programming tools <ul style="list-style-type: none"> - UNIX - ADA - Programmer Workstations - Commercial AI 12. Networking Forecasts <ul style="list-style-type: none"> a. The network becomes the system b. An explanation of OSI c. OSI as a standard d. IBM's DataComm strategy |
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Day 3 - Leveraging Application Development Productivity

VAUGHAN MERLYN is a well-known authority on Application Generators and 4th Generation Languages, specializing in their use in the Information and Development Centers. He consults for major vendors and prospective users of fourth generation technologies and has also authored the widely-acclaimed report, "Application Development Systems—The Comparative Consumer Report."

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|---|--|---|
| <ol style="list-style-type: none"> 1. Redefining the Productivity Problem <ul style="list-style-type: none"> a. Programmer productivity vs. application development productivity b. Application development productivity vs. application productivity c. Productivity vs. quality d. Measurement framework for productivity and quality 2. Setting Productivity Expectations <ul style="list-style-type: none"> a. What benefits can you expect from productivity tools? | <ol style="list-style-type: none"> b. What is the cost of achieving the benefits 3. Available Productivity Tools—Their Roles and Pitfalls <ul style="list-style-type: none"> a. Higher level languages b. Application Generators c. Design/analysis workstations d. Programmer workbenches e. Maintenance tools 4. Why Most Development Aids become "Shellware" | <ol style="list-style-type: none"> a. Developer mistake issues b. Management commitment issues c. Training issues d. Expectation issues 5. Avoiding the "Shellware Syndrome" <ul style="list-style-type: none"> a. Managing for successful tool implementation b. The role of "The Development Center" c. Managing change in the development community |
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Day 4 - Corporate Connectivity

LARRY DEBOEVER is a Vice-President of Digital Consulting, Inc. and a leading authority on systems integration issues. He is also chairman of The National Connectivity Symposium. Prior to joining DCI, Mr. DeBoever served as Director of Strategic Planning at Ungermann-Bass, Inc., which acquired Linkware Corporation where he was president.

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|---|--|--|
| <ol style="list-style-type: none"> 1. The Pressures for Achieving Corporate Connectivity <ul style="list-style-type: none"> a. Desktop computing b. Departmental computing c. Host terminal support d. Demands for distributing data e. Strategic business requirements 2. Basic Connectivity Technologies <ul style="list-style-type: none"> a. Terminal networks and RJE b. Wide Area Networks | <ol style="list-style-type: none"> c. LANs & data PBXs d. Very high speed interconnections e. File transfer & micro-mainframe links 3. Obstacles to Connectivity <ul style="list-style-type: none"> a. Utilize & preserve existing investments b. Slow emergence of standards c. Performance issues d. Functional issues e. Decision-making issues | <ol style="list-style-type: none"> 4. Trends in Computer Connectivity <ul style="list-style-type: none"> a. SNA & OSI b. APPC c. LAN connectivity d. Twisted pair e. ISDN f. Gateways g. Micro-mainframe connectivity h. Enabling applications 5. A "Hypothetical" Case Study |
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DAYS 2-4

PRODUCT PRESENTATIONS

Digital Consulting, Inc. has published a classification system for database and 4th Generation Language products which includes fourteen major categories of software. All attendees of the DB & 4th 5th GL Symposium will receive a copy of this classification system, which can help software buyers understand the benefits of various types of products and select the right product for their applications. The four categories described below are examples of those in this classification system.

• Integrated Development Software

Many sessions at DB & 4th 5th GL will be devoted to these systems.

• 4GL Programming Languages

All of the leading 4GL products will be presented at DB & 4th 5th GL and most will be demonstrated at "hands-on" sessions.

• Information Center Software

All of the important Information Center tools for both mainframes and minicomputers will be presented and discussed at DB & 4th 5th GL.

• Relational Database

Most of the currently available relational DBMS products will be presented and analyzed at DB & 4th 5th GL.



Visitors representing all fourteen categories will make one-hour technical presentations at the DB & 4th 5th GL Symposium. A list of the products that will be presented at the Spring 1987 Symposium appears below.

ONE-HOUR PRESENTATIONS WILL BE HELD ON EACH OF THESE PRODUCTS:

Vendor	DB & 4GL Packages	Vendor	DB & 4GL Packages
Applications Software Inc.	INTERROGATE	Informix	INFORMIX
Applied Data Research, Inc.	DATACOM/DB	Leading Software Technologies	INTELLIGENT ASSISTANT
	IDEAL	Management Science America, Inc.	INFORMATION EXPERT
Britton Lee, Inc.	DATA DICTIONARY	McCormack & Dodge	MILLENNIUM
Burroughs Corp.	INTELLIGENT DATABASE	Micro Data Base	
Cincom Systems	MACHINE	Systems, Inc.	MDBS III
	UNC II	Mitrol Inc.	NITROL
	SUPRA	MultiSoft, Inc.	SUPER-LINK
	ULTRA	On-Line Software	
	MANTIS	International, Inc.	RAMIS Information System
	POWERHOUSE		RAMIS Workstation
Cognos Inc.			LIFO Productivity System
Computer Associates	CA-UNIVERSE		ORACLE
International, Inc.		Oracle Corp.	TELON
Computer Corporation of America	MODEL 204 PRODUCTS	Panoscopic Systems, Inc.	
	IMAGINE, ACCOLADE	Pro Computer	
Cullinet Software, Inc.	IMS/R	Sciences, Inc.	PRO-IV
	AUS/O	Rapport Corp.	RAPPORT
	GOLDFENGATE	Relational Technology, Inc.	INGRES
D & B Computing		Sage Software	APS
Services, Inc.	NOMAD 2	Software AG of N.A.	ADABAS
Digital Equipment Corp.	VIA, Rdb and 4GLs		NATURAL
Gupta Technology	SQBASE		SYSTEM 1032
Henco Software, Inc.	INFO		MAPPER
Hewlett-Packard	ALLBASE	Software House	
	HPSQL	Sperry Corp.	
IBM Corporation	IMS, SQL/DS, AS, DB2, CSP	Technology Information	
		Products Corp.	
Information Builders, Inc.	FOCUS INFORMATION		INFO MODELING
	CENTER	Tieradata Corporation	DATA MODELING
	FOCUS APPLICATION	3CI	DBC/1012
	DEVELOPMENT	Unilog, Inc.	INFOCEN
Information Resources, Inc.	EXPRESS	Wang Laboratories, Inc.	UNI-D
	EASYTRAC		PACE
	PKCS		

TWO WAYS TO REGISTER:

1. Call **617/470-3880** between 9:00 a.m. and 5:00 p.m. Eastern Time
2. Fill out and mail in the coupon below
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Printer



Rounding off

CONTINUED FROM PAGE 19

needs. However, that product typically needs rounding-off at the corners. This is not to say IBM develops incomplete software, but that its software often works better with the help of aftermarket products. IBM and others have been able to cut their product development costs substantially by letting aftermarket developers do the work.

In the microcomputer arena, IBM allowed thousands of micro software companies to develop the several thousand Personal Computer-compatible programs available today. I feel it was the efforts of these software developers that made the PC and its legacy of clones such a success, not the efforts of IBM's marketing department. In this case, the PC was IBM's square wheel. And even still, it

appears everyone from the software developers and board makers to the PC furniture manufacturers is trying to make that wheel round.

IBM has also found that it can create industry standards by letting others round the corners off their products. For example, when IBM introduced DB2 two years ago, the only interfaces and support languages for the product were those developed by IBM. Companies then began to develop and advertise products designed to enhance DB2.

With so many developers flaunting their DB2 interfaces and capabilities, it appears that the whole world supports IBM's new data base. The product has created a following that is nothing less than remarkable, but then, this is what

IBM expected.

Of course, IBM is not the only one profiting from its own square-wheel methodology. In fact, it is creating a healthy business environment for much of the software industry. By marketing a DB2 that can be greatly enhanced with the correct support tools, IBM has left open a number of areas in which third-party developers can thrive. For example, DB2 still needs screen management systems, numerous utilities, performance management products and so on.

Several developers have already begun introducing DB2 support products. CGI Systems, Inc. has developed a comprehensive DB2 application development and full dictionary support product called Package. Information Builders,

Inc.'s Focus, On-Line Software International's Ramis, Sterling Software, Inc.'s Dylakor Division and Dun & Bradstreet Plan Services, Inc. also provide DB2 support.

It's a practice that is another IBM original, and like all successful IBM originals, it is not without imitators. Cullinet Software, Inc., Lotus Development Corp. and others have also learned from IBM that trying to do it all yourself isn't necessarily the best business practice; however, keeping development costs low and letting the aftermarket build your product's following is.

Morton is president of the Dylakor Division of Sterling Software, Inc. of Granada Hills, Calif.

Tool monitors

CONTINUED FROM PAGE 19

cording to John F. Burton, BST executive vice-president.

A Comparator module in the product identifies differences between a purchased application and a vendor-supplied upgrade as well as isolated modifications made to the application by the customer. A Promotion module allows users to identify changes in applications that are being moved from development to test and production levels. Burton said, Control-1 similarly logs changes to source code and executable code in production applications, creating an audit trail that makes it possible to reconstruct any prior version of a program. It retails for \$57,500.

William McCutchie, manager of data base administration at General Electric Co.'s Plastics Division in Pittsfield, Mass., said Endeavor logs development changes quite well, but he would like to see "the ability to sign-out and sign-in code" added to the product in the future.

Designer

CONTINUED FROM PAGE 19

RT and systems design with Teamwork/SD phases.

Teamwork/Access, a data base and integration tool, is said to provide users with the ability to integrate other VAX/VMS software development tools with Cadre's Teamwork products.

Beta versions of the last couple will be available later this month, and the products are expected to ship to customers on March 31, Cadre spokesmen said.

Derrick Hately of the instrument and avionics systems division at Lear Siegler, Inc. in Grand Rapids, Mich., said he and his co-workers have been "evaluating all of the development-method tools becoming available over the last couple of years. At this point, Cadre is the best one."

Hately said that while he had some problems with the product, they were "no more than you would expect with a new product. We have a rather demanding environment. . . . In a number of ways, we were stretching [the software] beyond expectation."

Teamwork features an interactive multiwindow, graphics-oriented environment. The tool set costs \$8,900.

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NEW PRODUCTS

System software

Template, the software division of Megatek Corp., has ported its **Figaro Programmer's Hierarchical Interactive Graphics System (PHIGS)** standard product to Digital Equipment Corp. Vaxstation GPC environments, IBM systems with MVS or CMS operating systems and Apollo Computer, Inc. and Sun Microsystems, Inc. workstations.

According to a company spokesman, PHIGS is a graphics standard that can solve highly dynamic three-dimensional modeling applications while remaining de-

vice independent.

Figaro costs \$5,000 to \$32,000. Template, 9645 Scranton Road, San Diego, Calif. 92121.

Compuconcept, Inc. has announced **Intercept**, software designed for automating IBM MVS and MVS/XA data centers.

Intercept is said to allow users to program automatic responses to time-of-day events and activities that take place in the system.

It has access to write-to-operator and write-to-operator-with-reply messages and operator commands before they have effects on the system.

According to the vendor, with Intercept, users can suppress and reroute messages, simplify operator commands, implement console security and control network activity.

Intercept is priced from \$9,000. Compuconcept, Suite 238, 2464 El Camino Real, Santa Clara, Calif. 95051.

Bennett Software, Inc. has announced **Release 2.2** of its **Jobtrac** scheduler system for the IBM MVS mainframe environment.

The Jobtrac system was designed for MVS JES2 environments requiring scheduling services under IBM's TSO/ISPF.

Release 2.2 enhancements include data set triggering abilities, systems op-

erator command scheduling and automatic message recognition and reply triggering.

A permanent site license for the Jobtrac scheduler system is priced at \$38,400.

Bennett Software, P.O. Box 96694, Houston, Texas 77213.

Languages

Addem, Inc. has announced **Adders/GXL**, a component of its Adders on-line data entry system.

Adders/GXL is said to incorporate within Adders the power of Guest, Addem's fourth-generation applications development system.

It is said to allow users to tailor Adders' validation capabilities to meet a specific need. The GXL fourth-generation language features English-language commands that are entered on-line using a full-screen editor. Adders runs on IBM-compatible mainframes.

It is priced from \$18,500 to \$24,000. The GXL option is priced at \$2,500 for IBM VSE users and \$3,000 for IBM MVS users.

Addem, One Hollis St., Wellesley, Mass. 02181.

Application packages

Diagonal Data Corp. has enhanced its **Micro Maint** plant and facilities maintenance software package.

Users can now insert notes to maintenance procedures via a special page added to the program.

According to the vendor, the package can be used to describe in any desired level of detail additional specific instructions or information about a particular maintenance procedure.

Micro Maint costs \$4,950 for the single-user version. It runs on systems ranging from personal computers and the IBM System/36 to multi-user networks and some mainframes.

Diagonal Data, 2000 E. Edgewood Drive, Lakeland, Fla. 33803.

William A. Penderesen and Associates has announced **Plot 220** graphics software for the Digital Equipment Corp. VT220 and compatibles.

Plot 220 is said to provide true graphics presentation on a terminal with downline-loadable character set capability.

It is an application development kit made up of callable routines that define and initialize the plotting area on the screen, define terminal type and plot lines with pen control, either a line at a time or in multiline mode. The program supports output of the graph to a printer or to a file for inclusion on another document.

Plot 220 is priced at \$295 for DEC Microvax and VAX-11 systems and at \$495 for VAX 8000 series machines.

William A. Penderesen and Associates, 1037 N. Fair Oaks Ave., Sunnyvale, Calif. 94089.

Utilities

Promod, Inc. has introduced **Ada CFG**, an Ada code-frame generator option for its Promod series of computer-aided software engineering (CASE) environments.

Promod CASE environments with Ada CFG are said to take the user step by step from structured analysis through automatic Ada code frame generation.

Continued on page 26

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Continued from page 25

Ada CFG is used during the implementation phase of the CASE program, automatically creating Ada program templates from the preceding design phases.

The Ada CFG costs \$4,000 for the Promod version that operates on the Digital Equipment Corp. VAX and \$1,000 for personal computer environments. Promod CASE costs from

\$9,950 to \$25,000.

Promod, 22981 Alcalá Drive, Laguna Hills, Calif. 92653.

Symark International, Inc. has added Hewlett-Packard Co. Laserjet support to its CMA-Spool remote print-management system.

The feature provides users with control of reports directed to Laserjet printers, including number of copies, page formatting, page selection and font selection.

According to the vendor, CMA-Spool supports VTAM-based remote printer networks and operates as an MVS subsystem.

CMA-Spool costs from \$10,000 to \$15,000. The HP Laserjet feature costs \$3,500.

Symark International, Suite 704, 5655 Lindero Canyon Road, Westlake Village, Calif. 91362.

Visual Engineering, Inc. has announced Visual 3D, a modular two-dimensional graphics library for the Unix environment.

Visual 3D features three-dimensional primitives such as box, sphere, cylinder and rounded rectangles, surface shading such as wire frame, nonshaded solids and global shading, done

through ray-tracing.

According to the vendor, other features include solid extrusions from any two-dimensional area including text; and solid surface attributes such as multiple light sources of different types and anti-aliasing.

Visual 3D is priced between \$11,500 and \$8,000.

Visual Engineering, Suite 600, 2150 N. First St., San Jose, Calif. 95131.

Pacific-Sierra Research Corp. has announced Forge, an interactive facility for Fortran optimization for Cray Research, Inc. supercomputers available on Digital Equipment Corp.'s Microvax II workstations under VMS.

Forge is said to allow users to get timing analysis at the DO loop level; interactively restructure code; record an audit trail; recreate and modify any session; specify hardware and software target systems; and create transportable Fortrans.

Also provided is an on-line seminar on various machine architectures, according to the vendor.

A corporate license is priced at \$99,000. A single workstation license is priced at \$45,000. After the first year, annual maintenance is extra.

Pacific-Sierra, Suite 203, 312 Main St., Placerville, Calif. 95667.

K.I.S.S. (Keeping It Simple Software) Division of Robert J. Loeb Management Consultant has announced the RTMN/CICS Response Time Monitor.

The monitor for CICS is said to display CICS response times and produce a log file that can be viewed on-line or printed in batch mode.

The RTMN/CICS Response Time Monitor costs \$906.

K.I.S.S., 5803 N. Cicero Ave., Chicago, Ill. 60646.

Softool Corp. has announced Release 2.1 of its Change and Configuration Control (CCC) environment for the IBM VM/CMS operating system.

Release 2.1 is said to increase execution speed and add new data base and journal file formats.

CCC protects the integrity of the command line it manages. A new command locates and documents invalid data that can optionally be corrected or excised from the data base.

CCC on the IBM VM/CMS is priced at \$30,000.

Softool, 340 S. Kellogg Ave., Goleta, Calif. 93117.

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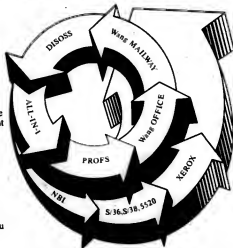
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MICROCOMPUTING

SMALL TALK



William Zachmann

Bringing 3-D to your PC

In these days of growing dominance by a few major software vendors, it is refreshing to note that individuals can still come up with useful products in their spare time. A recent instance is found in Datasaur, a program for creating three-dimensional graphs on an ordinary IBM Personal Computer or compatible.

Developed by Mark Bridger, an associate professor of mathematics at Northeastern University in Boston, Datasaur makes it easy to create 3-D graphical presentations of data arrays. Sold by mail, Bridge Software, Inc.'s \$125 Datasaur package can be used to produce high-resolution 3-D graphs on standard dot matrix printers.

The program's basic capability turns a two-dimensional table of data values into a 3-D graph. The rows and columns of the table are used to define a horizontal plane of rectangular plot points. The data values in

Continued on page 30

Vaxmate buyers await delivery

BY DAVID BRIGHT
OF STAFF

Although Digital Equipment Corp. is promoting its Vaxmate microcomputer as a key part of its networking strategy, key elements of the system are five months late. However, DEC customers say they are still hopeful that the complete system will work as promised.

Introduced five months ago, the Vaxmate is an IBM Personal Computer AT-compatible system with a built-in Thinspire Ethernet networking capability for closely linking the unit to other VAX systems. DEC is also readying an integration kit for giving complete Vaxmate capabilities to PCs.

However, George Symula, marketing manager of DEC's Personal Computing Systems Group, cannot say when that product will be available.

The basic 34,065 Vaxmate comes with 1M bytes of random-access memory and one 1.2M-byte floppy disk drive. DEC offers an optional \$1,945 expansion box that contains a 20M-byte hard disk drive and two expansion slots, but the unit has so far been difficult to obtain. DEC experienced some thermal problems with the box, which does not have a fan, but Symula says that problem has been solved. Normal delivery procedures are now in effect, Symula says. Other than that, he cannot specify delivery times for either the Vaxmate or the expansion box.

VAX/VMS Services for Microsoft Corp. MS-DOS, a major

component of Vaxmate that includes network server features, has been shipping since the system was announced, Symula notes. However, he cannot say when the network interface card necessary for linking the Vaxmates to other machines will be available in volume. DEC is currently shipping the card to selected accounts, he claims.

Camp Dresser & McKee, Inc. in Boston ordered two Vaxmates last September, received the systems in early January and is still waiting for the expansion boxes. The firm's director of computer resources, Bill Sommerfield, says the testing procedure is being held up by the lack of the expansion units. DEC told him it is planning to deliver the

boxes in March or April, he says.

"On paper and in the demos that we've seen, it looks like a very nice product, particularly for a site that has a lot of VAXs as we do," Sommerfield says. "We don't feel that we can order any more of them until we get the whole thing together and have a real chance to test them." Sommerfield says he feels DEC should drop the price of the systems to make them more competitive with other microcomputers on the market.

However, one analyst claims that, at least in Fortune 2000 scientific and engineering environments, the connectivity issue is more important than pricing. "Networking and connectivity is

Continued on page 31

DDL reaches PC tools

MORAGA, Calif. — An agreement recently reached between Insight Development Corp. and Imagen Corp. will bring Imagen's Document Description Language (DDL) capability to existing IBM Personal Computer-compatible applications software, the two companies said.

According to Insight President Doug Cole, his company's Lasercontrol software will serve as a bridge between most PC software packages and printers that support DDL. The menu-driven software package enables existing applications programs to access laser printers by emu-

lating printers supported by those applications.

"Imagen's version of Lasercontrol will help protect the investment the installed base has made in software by bringing the advanced features of DDL to that software," Cole said.

DDL is said to provide flexibility in the designing and printing of complex documents, such as in desktop publishing applications.

Under the agreement, Insight will develop a private-label version of Lasercontrol for Imagen to sell or license to its laser printer customers and to sell through distributors and dealers.

Kaypro slashes prices

SOLANA BEACH, Calif. — Following the industry trend of lowering microcomputer prices, Kaypro Corp. late last month cut the prices of its IBM Personal Computer AT-compatible systems by as much as 25%.

The price of the Kaypro 2861 Model C with 640K bytes of random-access memory (RAM) and a 30M-byte hard disk drive fell from \$3,995 to \$2,995. The price of the Kaypro Model A with 640K bytes of RAM and one 1.2M-byte floppy disk drive dropped from \$2,495 to \$1,995.

Kaypro had recently increased the speed of the systems' processors to 10 MHz and increased the systems' memories to 640K bytes.

Kaypro's move follows IBM's most recent price reductions. IBM lowered the prices of its Personal Computer XT Model 286 and the entry-level PC AT from \$3,995 to \$3,395.

Inside

• A virtual memory manager allows programs to access 8M bytes of virtual memory on IBM PCs. Page 31.

• Ricoh introduces a compact 5 page/min printer. Page 35.

Advertisement

Oracle launches ALLIANCE program for software VARs

Oracle Corp., supplier of the ORACLE distributed relational DBMS and application development tools, has announced a new program for software value-added resellers dubbed the Oracle Alliance program. The program offers broader markets, simpler, faster selling cycles, and shorter time-to-market for VARs who build or convert their applications to use Oracle's products.

According to Larry Hamman, Oracle's Director of the VAR program, "We offer major business benefits to VARs who choose to use ORACLE with their products. Chief among these benefits is ORACLE's portability and the portability of ORACLE-based applications, allowing applications and data to be shared among different machines. Oracle also provides the link between database information among the different machines."

Broader VAR Markets

ORACLE runs on the widest array of hardware: IBM mainframes under MVS and VM, most vendors' minis under both proprietary and UNIX operating systems, and PCs under MS-DOS. Oracle also developed SQL*RT, marketed by IBM on the RT PC.

Hamman states, "Only with ORACLE can an application developer produce software on one system and export a vast market of users of multiple vendors' hardware. Basically, we let our software VARs do blindfold selling."

FEBRUARY 9, 1987

"Blindfold Selling"

The company described "blindfold selling" as the ability of a VAR's salesman to walk into an end-user site blindfolded and say, "I don't know what types of hardware you're using, or how many types there are, but my applications run on all of them." Hamman points out that this is a tough decision to make concerning what hardware to implement on. With ORACLE, that decision needn't be made. Software VARs who establish a niche in a particular vendor's install base can take advantage of ORACLE's portability to sell on other hardware environments.

Shorter Time To Market

The company also cited the high level of productivity offered to VARs by Oracle's broad range of application tools, including a forms system, integrated spreadsheets, graphics and other tools. These yield development and maintenance efficiencies that translate into shorter time-to-market and lower costs.

And, Hamman adds, "ORACLE is the most complete and mature SQL-based DBMS on the market. SQL is becoming a national standard, so developing applications with an IBM-compatible, portable DBMS makes business sense in both private-sector and public-sector markets."

For action on this program, Oracle discounts print support, training and co-marketing combine to make the Alliance program an outstanding opportunity for software VARs.

COMPUTERWORLD

Advertisement

Oracle Corporation, founded in 1977, builds and markets the ORACLE distributed relational DBMS, 4GL, and DSS tools. ORACLE was the first commercial SQL-language DBMS, and is compatible with IBM's DB2 and SQL DS DBMSs.

ORACLE provides a standard software environment across a wide range of computers and operating systems, including IBM mainframes, minicomputers from DEC, ICL, ATT, HP, Stratus, IBM, Apollo and many others, and IBM PCs. ORACLE runs with IBM's MVS and VM/CMS, DEC's VAX/VMS and ICL's ACIS/VS among others, as well as with UNIX, on most systems.

All versions of ORACLE, from the mainframe to the PC implementation, are identical. ORACLE is the only relational DBMS which provides the complete portability of data and applications across a wide variety of systems. Oracle's SQL*Net architecture links dissimilar systems running ORACLE.

Oracle Corporation markets its products worldwide through 30 direct sales offices, 11 distributors and the Authorized Oracle Dealer network. In addition, ORACLE is sold by numerous hardware manufacturers, including IBM, Honeywell, Spang, Stratus and Prime.

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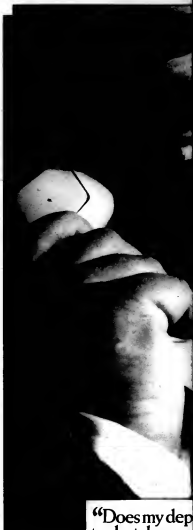
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For action on this program, contact Larry Hamman, Director of the Alliance program, Oracle Corporation, 310 Davis Drive, Redwood City, CA 94062 or call 800 355-0185.

27

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Battle brews

FROM PAGE 27

the table are used to determine the height of the graph points.

The resulting 3-D shape may be represented as either a succession of overlapping planes or a surface. A standard autograph command can be used to create an initial view of the data.

Additional commands make it relatively easy to rotate or rescale axes and annotate the graph with titles of different fonts and sizes.

The data arrays that define the graph may be input to Datasurf directly or imported from another file.

A conversion utility assists in bringing in data from ASCII text files, Micropro International Corp.'s Wordstar files or Lotus Development Corp.'s work sheet files. Datasurf can handle input tables with up to 32,767 plot-point entries.

The program delivers a reasonable what-you-see-is-what-you-get display using the 640- by 200-pixel monochrome graphics display of the IBM Color Graphics Adapter or a compatible adapter. It will work with the Enhanced Graphics Adapter only in the 640- by 200 mode of the program's current release.

Printer output, however, may be done at what amounts to plotter resolution. Epson America, Inc. FX printers and compatibles, for example, may be used at resolutions up to 1,600 by 640 for a screen image. A version is also available to support plotters.

Creates time series

The printer/plotter resolution the program handles, combined with the annotation capabilities it provides, makes Datasurf a practical tool for creating 3-D presentation graphics. Monthly time series covering a number of years, for example, can be nicely represented in a Datasurf 3-D graph.

Annotation and labeling of graphs is facilitated by a capability that sets the annotation cursor on the graph by the individual cell position in the input data. A good assortment of scaling, rotational and other options facilitates positioning the

3-D graph to the best advantage.

Datasurf comes standard with a version to support the Intel Corp. 8087 or 80287 math coprocessor chips. Users will appreciate the additional speed these floating-point processor chips provide.

The program and its documentation does carry some indication of its modest origins. It

is a bit more quirky than more polished software from big-time vendors and requires a certain amount of user sophistication. For example, if the matrix dimensions for the input data are not described correctly, the program is likely to come to an abnormal termination.

For anyone interested in turning data into 3-D graphics, however, the rough edges on

the program will be no more than minor irritations. The many examples included in the documentation and the straightforward menu selection system are adequate to make the functions of Datasurf available to the average PC user.

The essence of business graphics lies in its ability to represent a lot of information in a single image. Although many

graphics programs are available, those offering 3-D graphical representations for ordinary business users are few. Though hardly a perfect product, Datasurf goes a lot farther in making 3-D graphics feasible to ordinary users than many more expensive programs.

Zachmann is vice-president of research at International Data Corp.

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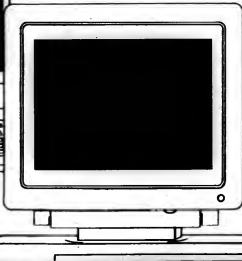
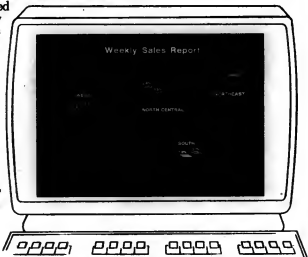
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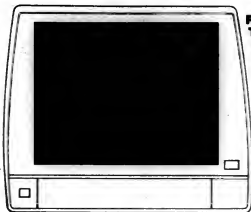
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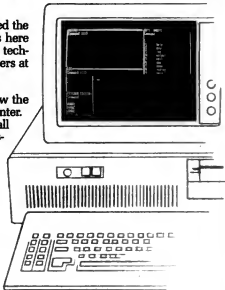
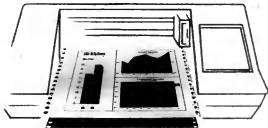
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NEW PRODUCTS

Peripherals

Lodown has introduced its **Image Scanner**, a tabletop optical scanner for Apple Computer, Inc.'s Macintosh.

The **Image Scanner** offers input resolution with true half-toning, according to the vendor.

The system connects to the small computer systems interface bus.

It digitizes graphics, photographs and drawings, providing full-page scan in 12 sec. at 300 dot/in. and with 32 shades of gray scales.

The user may edit the captured images by cropping, sizing, touching up and adjusting the brightness and contrast, the vendor said.

The **Lodown scanner** is priced at \$1,295.

Lodown, Suite 200, Victor Sq., Scotts Valley, Calif. 95066.



Lodown's tabletop optical scanner

CPT Corp. has announced the **CPT LP-8S** desktop laser printer.

The **CPT LP-8S** is said to feature one-pass printing of scientific notation and advanced text processing. It offers 11 built-in fonts and supports portrait or landscape modes of the entire set of CPT-supported scientific, arithmetic and Greek symbols as well as the extended ASCII character set.

The printer offers speeds up to 8 page/min and is compatible with CPT Phoenix, Phoenix Jr. and Office Companion 2000 workstations as well as IBM Personal Computers.

The **CPT LP-8S** costs \$3,500. **CPT**, P.O. Box 295, 8100 Mitchell Road, Minneapolis, Minn. 55440.

Ricoh Corp. has introduced the **PC Laser 6000**, a compact 8 page/min printer.

The printer is said to feature a controller configured with 1M byte of random-access memory, expandable to 2M bytes. Other features include 300 dot/in. resolution, Centronics Data Computer Corp. parallel and RS-232C serial interfaces.

The printer supports up to 32 fonts per page from the eight built-in fonts, font cartridges or fonts downloaded from the host microcomputer. Fonts can be printed in portrait or landscape orientation on the same page in bold, shadowed or underlined.

The **PC Laser 6000** is priced at \$2,395.

Ricoh, 5 Dedrick Place, West Caldwell, N.J. 07006.

International Microcomputer Software, Inc. has announced **Econmouse**.

Econmouse is a Microsoft Corp.-com-

patible mouse said to feature 200 dot/in. resolution. The mouse comes with its own pop-up menus and is intended for use by volume users for desktop publishing systems.

The **Econmouse** requires an IBM Personal Computer, Personal Computer XT, AT or compatible with RS-232 serial port. It costs \$99.

International Microcomputer Software, 1299 Fourth St., San Rafael, Calif. 94901.

Western Automation Laboratories, Inc. has announced the **Seleris**, an intelligent plot spooler designed to work with

computer-aided design systems.

The **Seleris** supports IBM Personal Computers and compatibles. Software compatible with the system includes Autodesk, Inc.'s AutoCAD and Versacad. Plotters supported include those from Hewlett-Packard Co., California Computer Products, Inc. and Houston Instruments, Inc.

The **Seleris** installs via an RS-232 port. It comes in 512K-byte, 1M-byte and 2M-byte sizes. It can selectively abort or repeat a plot, check the status of stored plots, purge a spooled file and plot multiple copies.

Prices for the plot spooler range from \$595 to \$1,295.

Western Automation Laboratories, 1700 N. 55th St., Boulder, Colo. 80301.

Link Technologies, Inc. has introduced the **MC1 VDT** designed for multi-user personal computer environments.

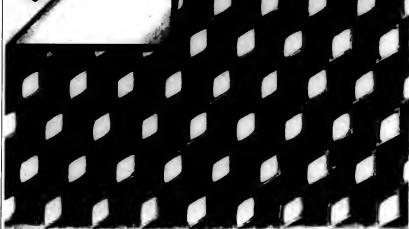
The **MC1** is said to transmit both IBM scan codes and ASCII transmissions. It offers both the full 256-character IBM character set and Personal Computer AT keyboard.

The **VDT** has two separate serial communications ports that allow communications with the host computer and a local printer at speeds of up to 19.2K bit/sec., the vendor said.

The **MC1** features a 14-in. display available in green or amber and an 80-col. by 25-line display format.

The **MC1** is priced at \$419. **Link Technologies**, 47339 Warm Springs Blvd., Fremont, Calif. 94539.

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SOFTWARE SOLUTIONS

Computer Friends, Inc. has introduced Superchroma, a color display for the Apple Computer, Inc. Macintosh.

The Superchroma is said to include the video display controller, software and high-resolution red-green-blue monitor. It offers 640- by 640-pixel resolution, the ability to display 256 colors simultaneously from a palette of 262,144 and an automatic shading command for the effect of three-dimensional shapes and color blends.

Superchroma is priced at \$2,995.

Computer Friends, 14250 N. W. Science Park Drive, Portland, Ore. 97229.

Board-level devices

Standard Microsystems Corp. has in-

troduced the SMC4013-PC Dual Winchester and Dual Floppy Controller board.

The board is said to be plug compatible with IBM Personal Computers. It controls up to two standard Winchester disk drives and two IBM-compatible floppy disk drives. It provides for data error detection and correction as well as adjustment-free on-board data separation.

The SMC4013-PC Dual Winchester and Dual Floppy Controller Board is priced at \$195.

Standard Microsystems, 35 Marcus Blvd., Hauppauge, N.Y. 11788.

Tatung Company of America, Inc. has introduced an enhanced version of its high-resolution enhanced graphics adapt-

er (EGA) card, called the TEGA-22 Plus.

The TEGA-22 Plus features a screen-saving feature to prevent burn-in on screen phosphor.

The card is also said to be 100% compatible with IBM's EGA, Color Graphics Adapter and Monochrome Display Adapter and Hercules Computer Technology, Inc. graphics cards.

Other features include flicker-free performance, 256K bytes of display memory and horizontal scan rates of 15.75 KHz, 18.43 KHz or 22 KHz. Sixteen colors are available from a palette of 64 for EGA mode.

The TEGA-22 Plus is priced at \$599.

Tatung, 2850 El Presidio St., Long Beach, Calif. 90810.

Matrox Electronic Systems has announced the SM-640(A) solid modeling board set for the IBM Personal Computer AT. It is said to use Silicon Graphics, Inc.'s Geometry Engine to enable the PC AT to act as a three-dimensional mechanical engineering workstation.

The product offers 640-by-480, non-interlaced resolution. It features a custom very large-scale integration shading engine for Gouraud shading and 1M byte of display list random-access memory. It includes a full-screen Z-depth buffer for hidden line/surface removal.

The SM-640 is priced at \$4,995.

Matrox, 1055 St. Regis Blvd., Dorval, Quebec, Canada H9P 2T4.

NCR Corp. has announced the ADP-315 host adapter designed to connect IBM Personal Computers and compatibles to the small computer systems interface (SCSI).

The ADP-315 is said to support byte-by-byte and direct-memory address data transfers. It also allows the sharing of the channels with other cards. The on-board, socketed and optional read-only memory includes a disk driver that provides an interface to IBM's PC-DOS for up to two fixed disk devices supporting the SCSI command set.

The ADP-315 is priced at \$225 including read-only memory.

NCR, Engineering and Manufacturing, Wichita, Kan. 67226.

Software applications packages

Executive Technologies, Inc. has announced its Searchexpress product series for full text and image storage and retrieval.

Searchexpress utilizes either write-once optical disks or magnetic disks. It works on the IBM Personal Computer family and compatibles. According to the vendor, text and images may be input via scanners and optical-character recognition software.

Features include full Boolean searching capabilities and simple word search. It uses windows and pull-down menus.

Searchexpress costs from \$199.

Executive Technologies, Suite 260, 1075 13th St. S., Birmingham, Ala. 35206.

International Microcomputer Software, Inc. has announced Desktop Publisher's Graphics, a graphics package designed for desktop publishing.

The software is said to feature free-hand graphics. It allows users to import, edit and enhance images from programs such as Lotus Development Corp.'s 1-2-3, Decision Resources, Inc.'s Chart-Master, Microsoft Corp.'s Chart and Autocad from Autodesk, Inc. for use with IBM-compatible desktop publishing software such as Xerox Corp.'s Ventura.

The software is priced at \$195.

International Microcomputer Software, 1299 Fourth St., San Rafael, Calif. 94901.

Dyson-Eubanks, Inc. has announced its Office Management System (OMS) software.

Information management functions performed by OMS include client and job information maintenance, vendor information maintenance, general ledger, billing and expense reporting, purchasing, quotations, job accounting, accounts re-

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Continued from page 37

WX supports embedded and command-line options. It converts Wordstar dot commands and allows for deleting unwanted control characters.

Tech Knowledge, 1728 11th Ave., Seattle, Wash. 98122.

Software languages

Gimpel Software Co. has announced C-Terp for Xenix, a C interpreter and development environment for the Microsoft Corp. Xenix 286 System V operating system.

C-Terp is said to support the full C language. It has no fixed-size tables to overflow so it can use the full 16M-byte address

space supported by Xenix.

The system also supports multiple modules and include files as well as library routines.

It comes with a library of its own and a batch file that can link functions in the Xenix C library.

C-Terp for Xenix carries a price tag of \$498.

Gimpel Software, 3202 Hogarth Lane, Collegeville, Pa. 19426.

Software utilities

Borland International has announced the Turbo Prolog Toolbox, a collection of tools, sample programs and source code for use with its Turbo Prolog for artificial intelligence applications.

The Toolbox includes user-interface design tools for setting up context-sensitive Help menus, menus in windows containing both text and graphics characters and screen layouts for either the actual screen or for a virtual screen.

The Toolbox contains predicates to generate a variety of graphs and import existing data from other applications.

The Turbo Prolog Toolbox is priced at \$99.95.

Borland International, 4585 Scotts Valley Drive, Scotts Valley, Calif. 95066.

Communication Horizons has announced UDF+, a user-defined function engine for Ashton-Tate's dBase III Plus.

UDF+ is said to allow the dBase user to write customized functions and run

them under dBase. Functions are defined using dBase syntax and do not require knowledge of C or assembler languages.

UDF+ also allows users to debug Clipper code. Users can also create their own dBase function libraries, which will run under Clipper with little or no program change.

UDF+ requires any version of dBase III Plus and 5K bytes of free memory. It is priced at \$99.

Communication Horizons, Suite 900, 701 Seventh Ave., New York, N.Y. 10036.

Select Corp. has announced CMDNCO/PC, a personal computer software utility for Prime Computer, Inc. Series 50 users.

The utility is said to provide Series 50 users with Prime commands on their personal computers running DOS.

CMDNCO/PC allows users to access commands such as ATTACH, LD, AVAIL, CNAME, POP and ORIG, according to the vendor.

On-line Help is provided for all commands in the CMDNCO/directory.

CMDNCO/PC is accessible from within Cosmos, Inc.'s Revelation and Prime's Prime Information/PC data bases along with other third-party packages.

CMDNCO/PC is priced at \$69.95. Select, Suite 100, 10 Learney Road, Needham, Mass. 02194.

Polytron Corp. has introduced Polyshell, a Microsoft Corp. MS-DOS extender and command interpreter.

Polyshell features Unix-like commands. It offers a Unix interface. It includes more than 50 utility programs and an interactive help facility.

According to the vendor, software created when using Polyshell does not require Polyshell to operate.

Polyshell costs \$149. It runs on IBM Personal Computers and compatibles.

Polytron, Suite 1220, 1815 N. W. 169th Place, Beaverton, Ore. 97006.

Training

Anderson Soft-Tech has introduced two video-based courses titled MS/PC-DOS: Using DOS with Hard-Disk Systems and MS/PC-DOS: Advanced DOS Commands for Hard-Disk Systems.

Each course consists of six lessons. The first includes topics such as DOS concepts, using directory commands and setting up subdirectories. The second includes establishing a subdirectory system, organizing the hard-disk and file-maintenance commands.

Each course includes a personal training guide, practice disk and videotape in either VHS, Beta or 3/4-in. format. They cost \$275 each or \$495 for the set.

Anderson Soft-Tech, 2680 N. First St., San Jose, Calif. 95134.

Systems

Our Business Machines, Inc. has announced an IBM Personal Computer XT and AT-compatible multiuser subsystem for sites requiring two to eight workstations.

The system includes a 14-in. green monitor, AT-style keyboard, network software, a multiuser expansion card and 256K bytes of random-access memory expandable to 704K bytes. It costs \$995.

Our Business Machines, 9698 Telstar Ave., #307, El Monte, Calif. 91735.

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Based on the 16-bit Intel 80286 microprocessor, the Tandy 3000 HD (25-4011)

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NETWORKING

DATA STREAM



Elisabeth Horwitt

Let's hear it for Bellcore

U.S. West, Inc. recently announced that it is giving the requisite three-year notice needed to sell its stock in Bell Communications Research Corp. (Bellcore). The reason, according to industry sources, is that U.S. West feels constrained by the current arrangement, under which all seven regional holding companies own equal shares in Bellcore and have equal access to all new technologies, protocols and services developed by the company.

"Our differences involve our request to provide services that match the individual and competitive needs of the different companies; we want to see more proprietary, tailored solutions," explains Donald Johnson, director of corporate information for U.S. West. He adds that U.S. West has not committed itself to getting out of Bellcore — just to making sure it has that option if current negotiations with Bellcore do not work out.

Continued on page 42

Gate links PCs, Unix terminals

BY ALAN J. RYAN
CW STAFF

MINNEAPOLIS — Control Data Corp. has announced a gateway software product suite that allows authorized users to gain selective access to business and engineering computers using a personal computer or terminal.

The Ascent gateway software works under University of California at Berkeley Unix 4.2 and with Digital Equipment Corp.'s Ultrix on the VAX-11 780, according to Don Jem, product manager at CDC.

The software works with computer systems from a variety of vendors, including Pyramid Technology Corp., Tolerant Systems, Inc., Gould, Inc., Elxsi

Co. and Solaris.

The key aspect of the product, Jemsen said, is that it allows users to access existing applications on Unix-based systems and integrate the existing equipment base so users do not have to bring in new equipment.

"The software breaks the traditional barriers between equipment," said Gary Guardia, vice-president of CDC's Professional Services division. Acting as a gateway, the software allows users to key into it through any machine connected to the network. Only the gateway machine requires Unix, according to the company.

Products included in the suite are as follows:

- Ascent gateway, which allows

automated access and connectivity to local or remote computing resources through local and long-haul communications paths. By using a simple command, a user can connect to a remote data base without worrying about access numbers, login procedures or passwords, CDC claimed.

- Ascent mail, which provides message services within a computer network and offers address, forwarding and mail file-management functions. It is compatible with Simple Mail Transfer Protocol.

- Ascent plus, which provides a menu-driven user interface to access the integrated software applications, utilities and system

Continued on page 42

AT&T cuts dedicated line rates

BY ELISABETH HORWITT
CW STAFF

WASHINGTON, D.C. — AT&T recently proposed to the Federal Communications Commission pricing changes that would reduce interstate private-line customers' rates by approximately \$24 million overall, the company said.

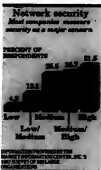
This filing modifies a proposed increase of 3.3% in rates for most interstate private lines, which AT&T submitted to the FCC last November. AT&T has suggested that most intercity dedicated digital and analog services would be increased by 2.7% instead of 3.3%.

The company further proposed that pricing for switched private-line services, such as Common Channel Signaling Arrangements and Enhanced Private Line, be increased by 4.0%.

Inside

- Stratcom enhances voice-packet switch. Page 41.
- Agile Systems rolls out asynchronous interface cards. Page 43.
- Connecticut Technical adds modems for RS-232C, V.35 interfaces. Page 48.

Data View



Proton adds internetworking, net management to Protonet-4

BY ELISABETH HORWITT
CW STAFF

WASHINGTON, D.C. — Proton, Inc. is expected to introduce products this week that add network management, internetworking and enhanced configuration capabilities to its Protonet-4 local-area network (LAN), which is based on the IEEE 802.5 token-ring standard.

At the Communication Networks '87 conference, held here this week, the Westboro, Mass., vendor is expected to introduce

enhancements to its P2700 series of Intelligent Multi-Station Wire Centers for Protonet-4, an IBM Personal Computer-based network management system for 802.5 networks and a Protonet-4 implementation of Virtual Network System (Vines) from Banyan Systems, Inc.

The P2700 is an existing Proton product that performs the same basic functions as IBM's Multistation Access Unit, interfacing up to eight IBM PCs to a nearby wiring closet, which in

Continued on page 40

MAINFRAME
printf("Hello, world\n");

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SAS Institute Inc. announces a mainframe version of the Lattice® C compiler—your key to truly portable applications.

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The mainframe compiler uses standard IBM linkage conventions. Assembler programs, MASM routines in other high-level languages, and packages such as IBM's ISPF and GDGM can be invoked directly from C.

And you can use C, instead of assembler, to develop small and fast subroutines called from other languages.

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Proteon

FROM PAGE 39

turn forms part of a token-ring network.

Proteon is introducing a series of enhancements this week that go beyond the basic 802.5 connectivity offered by both the P2710 and IBM's product, according to Tony Bolton, Proteon director of marketing. These include:

- The P2712 fiber-optic wire center, which permits mixing fiber and nonfiber access units on the same network. It will be available in April.
- The P2713 remote wire center,

list location and status of all intelligent wire centers and nodes on the display screen.

It can remotely take wire centers on and off the network in order to isolate network trouble spots.

Delete and restore

IBM's network management software for the Token-Ring can remotely delete nodes from the

network but not restore them, according to Proteon. IBM was unavailable for comment.

The Advanced Network Management package, priced at \$1,250, will be available in March. Pricing for the other products is not yet available from Proteon.

Proteon's implementation of Banyan's Vines server software on Pronet-4 has the ability to

provide users with more choice in terms of networking software that can be implemented on the token-ring network, according to Michael Katz, Proteon product manager.

Banyan offers "better integration of different networking protocols" as well as inter-networking and global naming features, he added.

Vines permits Pronet-4 users

to share resources with other PC users on a variety of other networks, including Proteon's Pronet-10 token-ring, the PC Network and Ethernet LANs, the vendor said.

The product is also said to offer a 3270 gateway to IBM mainframes.

Vines software for the Pronet-4 is currently available for \$1,895.

THE implementation of Banyan's Vines server software on Pronet-4 provides users with more choices in terms of networking software."

MICHAEL KATZ
PROTEON, INC.

ter, which permits an additional eight IBM PCs to be interfaced to the network via the same twisted-pair link. It will be available in March.

- The P2710, an intelligent version of the P2700. Equipped with an on-board microprocessor, the P2710 can perform network diagnostics such as loop-back testing, talk to other wire centers and interface with the newly introduced Advanced Network Management software. The P2710 will be available in March.

Advanced Network Management is a multitasking, multiwindow program that turns a dedicated PC into a centralized network management system that controls, monitors and remotely configures nodes on a Pronet-4 or IBM Token-Ring network.

According to Proteon, the software can collect diagnostic data from multiple Intelligent Multi-Station Wire Centers and

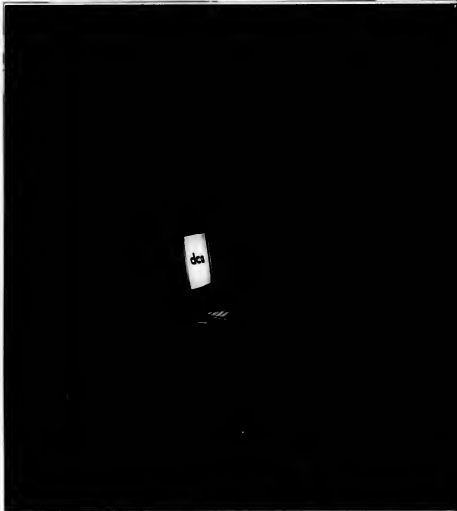
AT&T cuts

FROM PAGE 39

vate Switched Communications Service, would be reduced by \$28 million, effective March 13.

Taking effect last week was a net reduction of \$55 million in charges for local channels needed to connect customer locations to AT&T central offices.

These latter changes reflect AT&T's projection of lower costs this year as a result of recent reductions in the local telephone companies' access charges to interexchange carriers, the company said.



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Firm upgrades voice-packetizing T1 switch

IPX converts synchronous and Fastpacket protocols to support 96 lines, 500 integrated data channels

BY STANLEY GIBSON
OF ENR

CAMPBELL, Calif. — Stratacom, Inc. recently announced Release II of the Integrated Packet Exchange (IPX), a T1

switch that packetizes voice transmissions, and a network management system that supports IBM's Netview.

The enhanced version of the IPX Network Resource Manag-

er includes the Fastpacket Data Packet Assembler-Disassembler (PAD), an integrated data interface that statistically multiplexes four data channels at speeds up to 1.344M bit/sec.

The product is T1-compatible despite the fact that the T1 rate is 1.544M bit/sec., the company said.

The PAD converts between synchronous and Fastpacket

protocols, compressing and routing each channel independently, with a throughput of 5.376M bits per PAD.

Capacity expansion

Stratacom has also expanded the switch's capacity in order to support up to 96 T1 lines and up to 500 integrated data channels.

Original Stratacom IPX models were capable of supporting only 40 T1 lines.

Installed IPXs can be upgraded to the full expanded capacity with minor mechanical changes, according to Stratacom.

Strataview

Also introduced was Strataview, which is a Netview-compatible, IBM Personal Computer AT-based network management system.

Strataview features color graphics displays of the network; integrated monitoring and control for third-party T1 and lower-speed multiplexers.

Other attributes of the network management system include an IPX Network Modeling Tool, a network design facility and packet diagnostics that support subsecond rerouting of voice and data channels.

The Fastpacket PAD is priced at approximately \$3,000; the expanded IPX is priced from \$15,000 to \$400,000 per node; and Strataview is priced from \$10,000 to \$30,000.

Beta-testing

The IPX Release II will be beta-tested during the next four months and will be available in the third quarter.

Stratacom, created approximately one year ago from a restructuring of Packet Technology, Inc., has sold equipment for eight customer networks thus far.

The firm recently received \$7 million in venture capital funding, resulting in a total venture investment of \$11.5 million.



Without ever obsoleting your original investment in hardware or software! And our adherence to industry standards ensures orderly growth *without* surprises—all the way to T3 and ISDN.

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Let's hear it

CONTINUED FROM PAGE 39

U.S. West would like to be able to fund special projects whose fruits would be enjoyed by its customers alone. It evidently has tired of an arrangement that, as a holdover from predivestiture days, assumes that the good of one operating company is the good of all. "These are not my siblings anymore; these are my competitors," U.S. West is not unreasonably pointing out.

It is hard to blame U.S. West for taking this attitude in the increasingly cut-throat post-divestiture market, in which every research and development dollar counts. On the other hand, U.S. West's exit from the Bellcore alliance could have long-range repercussions for users — and not just in U.S. West's region, either.

Even if the other companies do not follow U.S. West's lead — and none shows any sign of doing so at the moment — the breaking away of even one of the seven endangers Bellcore's viability as a protocol coordinator. Both before and after divestiture, Bellcore has ensured that customer-premise equipment uses the same electrical interfaces, hand-shaking protocols and channel-access methods to communicate with each local telephone company's central office — be it in New York City or Gary, Indiana. This is a largely unsung but absolutely crucial role.

"Bellcore is the only standards organization with a real staff," says Henry Levine, a partner at Washington, D.C., law firm Morrison & Foerster. "I have some problems with Bellcore — everyone does — but it would be disastrous" if the organization lost its ability to be "guardian of the uniformity of the national local exchange network. Look at how much trouble we're having with standards even with Bellcore."

And so we are. ECSA and dozens of T1 committees gnash their teeth trying to get carriers, central office switch vendors and customer-premise equipment vendors to agree on interface specifications. Just recently, the T1 C1.2 subcommittee finished drafting protocols on the data link layer, which will carry diagnostics, monitoring and other crucial network management information. Inter-

US. WEST evidently has tired of an arrangement that assumes that the good of one operating company is the good of all.

estingly enough, U.S. West was the only member of the committee to issue a hard no on the specifications.

While other bodies hammer out the higher level protocols, Bellcore has quietly ensured that local carriers may get together on the basics of switch-to-switch and switch-to-customer-premise equipment communications. Despite its efforts, glitches can occur, for instance, code mix-up between certain channel-service units and carrier switches, which

interfere with diagnostics on the local loop [CW, June 30].

Or, as has happened recently, customers can lose whole blocks of data in the limbo between discrete carriers' switches due to a lack of synchronization between clock speeds.

One such incident occurred over a link between independent telephone company Ltel Telecommunications Corp. and divested Bell operating company Ohio Bell.

Which brings us to an interesting point made by Levine: Why can't the major independent telephone companies buy a stake in Bellcore? Of course, the original seven stockholders — U.S. West in particular — may well object to making the fruits of Bellcore's R&D projects available to a greater number of potential competitors.

It all comes down to a classic dilemma faced by computer and communications vendors alike: How do you achieve interoperability if the features that make products incompatible also constitute the added value that causes customers to choose one vendor over another? During the next few years, we will all be confronting this issue in all its knotty aspects.

CDC debuts

CONTINUED FROM PAGE 39

administration tools. With this, all users use the same commands to access the software, according to CDC.

The software is currently being beta-tested. Prices vary with size of machine. For example, software with all three components combined for the Pyramid 98X would sell for \$25,000, and for the smaller Tolerant machine, the price would be \$15,000, said John Iffland, CDC marketing manager. Each component can be purchased separately, he added.

The amount of customization required for installation depends on the number of systems being hooked into the gateway, Jensen said. CDC customizes its menu-based program to link it with existing software. For the beta-test version, CDC will be the integrator.

Production releases are planned for mid-year.

NEW PRODUCTS

Local-area network hardware

Agile Systems, Inc. has introduced two packet-mode asynchronous interface cards, the AN 20/IBM and the AN 20/TI.

Both add-in local-area network (LAN) cards are said to attach up to two user devices to the vendor's Agilenet 20 network, providing distributed intelligence while enabling the user device to communicate on both an Agilenet 20 and a broadband LAN. The AN 20/IBM interfaces with IBM Personal Computers. The AN

20/TI interfaces to Texas Instruments, Inc. personal computers. Both support asynchronous user device data communications.

Both two-port Agilenet 20 series add-in cards cost \$495.

Agile Systems, Suite 103, 1411 LeMay Drive, Carrollton, Texas 75007.

Computer Protocol Corp. has announced the CS420 multiple protocol add-in Multibus board for Unix-based systems.

The CS420 can be supplied with protocols, including IBM Systems Network Architecture/Synchronous Data Link Con-

trol, IBM 3270 Binary Synchronous Communications, Burroughs Corp. Poll/Select, X.25 and Honeywell, Inc. VIP7700. It comes supplied with any two protocols.

The board allows simple ASCII terminals to act as mainframe terminals and supports 16 virtual circuits at one time to one or both host computers.

The CS420 comes in two-port or eight-port versions. Prices range from \$3,750 to \$5,250.

Computer Protocol, 155 West St., Wilmington, Mass. 01887.

Local-area network software

Software Synergy, Inc. has released

Respond/Quick, an asynchronous data communications package for the IBM Personal Computers and compatibles.

The package is said to feature teletypewriter and Digital Equipment Corp. VT100 terminal emulation, predefined communication session parameters, automated autodial and autohang, on-line Help and the ability to exit to DOS while maintaining communication. It also supports the Xmodem protocol.

Respond/Quick contains more than 20 different predefined parameter files for accessing information network services such as Dow Jones. The Source and Easy-link.

Respond/Quick costs \$39. Software Synergy, 641 Avenue of the Americas, New York, N.Y. 10011.

Standard Microsystems Corp. has introduced the **Netbios Emulator**, a software IBM PC Netbios emulation program.

The Netbios Emulator is said to enable users of Datapoint Corp.'s Arctnet local-area network (LAN) to operate in an environment that requires Netbios compatibility. The emulator consists of two program modules that execute in the personal computer as memory-resident background programs. It enables application software to execute normally while managing communication with other computers on the system.

The Netbios Emulator is priced from \$195 for up to four nodes.

Standard Microsystems, 35 Marcus Blvd., Hauppauge, N.Y. 11788.

Persoft, Inc. has announced versions of its **Smartterm terminal-emulation software** packages said to allow personal computers to communicate through network systems.

Users of the new versions of Smartterm 220 and Smartterm 400 who purchase an optional network kit can communicate with host computers through either the Ungermann-Bass, Inc. Net/One or Bridge Communications, Inc. Ethernet network systems, the vendor said.

Both products support Xmodem and Persoft's PDID file-transfer protocols. Smartterm 220 supports the Kermit protocol.

Smartterm 220 costs \$195, and Smartterm 400 costs \$149. Each network kit costs \$50.

Persoft, 465 Science Drive, Madison, Wis. 53711.

Protocol converters

Telebyte Technology, Inc. has announced the **Model 121 dual RS-232-to-RS-422 converter module**, said to provide the user with up to 28 full-duplex converters in 5 1/4 inches of rack space.

The module contains two independent and programmable converters mounted on a plug-in card for use with the Model 176 card cage.

Each converter is said to perform the function of providing a hardware conversion for full-duplex signals between devices containing RS-232 and RS-422 I/O ports.

Other features include Data Terminal Equipment/Data Communications Equipment selector switch, data rates up to 38K bps/sec. and a programmable cable terminator.

The Model 121 costs \$150. Telebyte Technology, 270 E. Pulaski Road, Greenlawn, N.Y. 11740.

ONCE AGAIN, STRATUS CATCHES THE COMPETITION WITH THEIR COMPUTERS DOWN.

It never fails. Every few years Stratus comes out with a new generation of fault-tolerant computers whose price/performance and reliability are a source of astonishment to our market and a source of embarrassment to our competitors.

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Because you may not see another computer like this until the 21st century.

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Stratus Computer, 55 Fairbanks Boulevard, Marlboro, MA 01752

Commex, Inc. has announced the CX-78 Type-A-to-ASCII Communications Adapter.

The CX-78 is a protocol converter designed to transform IBM 3278, 3279 or compatible display stations into asynchronous ASCII terminals. Transformation of the polled console interface to an RS-232C-compatible connection permits the user to access a broader assortment of computing resources.

Each unit has 10 RJ45 connectors and one DB-25 RS-232 connector.

The CX-78 costs \$2,495. Commex, 1655 Crofton Blvd., Crofton, Md. 21114.

Connecticut Technical Corp. has announced Interface Converters that allow full bidirectional communications between otherwise incompatible equipment.

According to the vendor, the Interface Converters allow conversion of data between CCITT V.35 and RS-232 V.24, CCITT V.35 and RS-422 and RS-232 V.24 and RS-422 devices.

Features include modem eliminator capability, front-panel selection of data rates from 1.2K to 921.6K bit/sec. and digital loop-back diagnostics.

The Interface Converters are available in stand-alone or rack-mount versions and are priced from \$405.

Connecticut Technical, P.O. Box 4607 Stamford, Conn. 06907.

Security

Sophco, Inc. has announced a security program called Gatekeeper designed to provide access control to user nodes on network systems.

Gatekeeper can be placed on a local-area network (LAN) floppy-boot disk or on a hard disk. Users must log on before they are permitted into the LAN system, ensuring that only authorized personnel gain entry to the network.

When placed on a hard disk, boot protection can be installed, stopping anyone from booting off a diskette to gain entry to the hard disk.

Gatekeeper is priced at \$39.95 per node.

Sophco, P.O. Box 7430, Boulder, Colo. 80306.

Modems/multiplexers

Emulex Corp. has announced the CS08, an eight-line, Q-bus asynchronous multiplexer with DHV11 emulation.

The CS08, designed for use with Digital Equipment Corp.'s Microvax II, is a single, dual-width board with RS-232C interface compatibility with most asynchronous terminals. It features up to 60K char/sec. throughput.

The CS08 costs \$1,000 without modem control and \$1,200 with modem control. Both prices include an eight-line distribution panel.

Emulex, P.O. Box 6725, 3545 Harbor Blvd., Costa Mesa, Calif. 92626.

Gen/Comp, Inc. has announced its Model 2136 16-line bus DHV11 asynchronous multiplexer for Digital Equipment Corp.'s MicroPDP-11 and Microvax computers.

The quad-height multiplexer is said to connect 16 asynchronous serial communications lines to the computer. It features program-controlled data transfer rates through 38.4K bit/sec. It inserts directly

into any Q-bus peripheral slot and provides 18- or 22-bit direct-memory access addressing.

The Gen/Comp Model 2136 is priced from \$1,800.

Gen/Comp, Six Algonquin Road, Canton, Mass. 02021.

Western Datacom has announced the 424 Line Backer security modem.

The modem is said to be configurable as either a two-wire, dial-up modem with call-back security or as a four-wire, leased-line modem with two-wire dial backup. Up to 56 access codes or phone numbers can be edited using a menu-driven editor. During both automatic and manual dial backup, call progress and the status of the leased line is sent to the user's terminal.

er's terminal.

Features include diagnostics, network mode functionality and speed conversion.

The 424 Line Backer costs \$795. Western Datacom, 5083 Market St., Youngstown, Ohio 44512.

Burr-Brown Corp. has introduced the LDM80 fiber-optic modem, said to be powered by the host RS-232 port signals.

Two of the limited-distance modems are said to allow most RS-232 cable links to be replaced and extended with a duplex fiber-optic cable. This allows the RS-232 limit to be extended up to 3.5 km with data transfer rates up to 19.2K bit/sec.

The LDM80 was designed for full-duplex asynchronous operation and to eliminate ground loops and reduce error rate.

The LDM80 is priced at \$98. Burr-Brown, P.O. Box 11400, Tucson, Ariz. 85734.

Buzcomp Corp. has introduced its Intellimodem 2400 and Intellimodem 2400 PC Hayes Microcomputer Products, Inc.-compatible modems.

The modems feature an internal bus, audio call-progress monitoring and loop-through RJ-11 connectors.

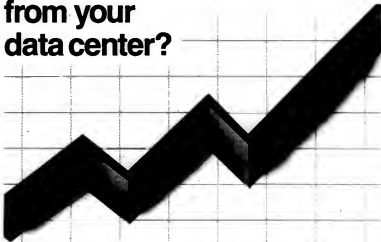
The external Intellimodem 2400 features a multicolor, signal-quality bar graph display. The internal Intellimodem 2400 PC is a half card that fits in a short slot of a personal computer.

The modems cost \$599 each. Buzcomp, 532 Mercury Drive, Sunnyvale, Calif. 94086.

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All of these capabilities are given to your IBM PC users as well. And every PC user can also send any DCA-compatible file throughout the network, the file automatically being converted to the format which the recipient can read and edit. Your PCs are linked to each other as well as to central data bases—yet they also provide users with their own local processing power and familiar user interface.

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For more information, call 1 800 367-4772, Dept. 282V.

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R:Base™ 5000 is a U.S. trademark of Microsoft® Inc.



**HEWLETT
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Business Computing Systems

Connecticut Technical Corp. has announced its Limited Distance Modems for RS-232 and V.35 interfaces.

The modems offer half- or full-duplex asynchronous communications speeds of up to 38.4K bit/sec. for RS-232 and 57.6 bit/sec. for V.35-compatible equipment. They use balanced-line and frequency-shift keying modulation to provide

high-speed transmission.

All models include a selectively timed remote-terminal system anti-streaming feature and are available in stand-alone or rack-mount modules.

The RS-232 versions are priced from \$125 and the V.35 versions are priced from \$150.

Connecticut Technical, P.O. Box 4607, Stamford, Conn. 06907.

Applied Spectrum Technologies, Inc. has announced its Econ limited-distance modem.

The Econ is said to multiplex voice and data onto a single pair of wires for synchronous or asynchronous data transmission at rates up to 19.2K bit/sec. It utilizes a forward error-correction algorithm and supports all RS-232-compatible devices.

The Econ is priced at \$490

per link.

Applied Spectrum Technologies, 450 Industrial Blvd., Minneapolis, Minn. 55413.

Diagnostic equipment

Electro Standards Laboratory, Inc. has announced its Model 700 EIA RS-232 Interface Analyzer.

The Model 700 is a diagnostic tool designed for use at the standard RS-232 or CCITT V.24 data interface of modems, multiplexers, terminals, and computers. It is inserted in series between the Data Terminal Equipment and the Data Communications Equipment to provide access to and monitoring of all data, timing and control signals.

The Model 700 analyzer costs \$245.

Electro Standards Laboratory, P.O. Box 9144, Providence, R.I. 02940.

Computer Systems Technical Support has added 20-, 40- and 60-point modular expansion boxes for its UCT-1000 universal continuity tester.

All three boxes can be moved from harness to harness using the same mechanical connectors. Testing a large harness with higher count test-point expansions requires permanent backwiring to the jig board.

Without mating connectors, the 20-point expansion box costs \$253. The 40-point box costs \$273, and the 60-point box costs \$293.

Computer Systems Technical Support, 1140 S. Raymond Ave., Fullerton, Calif. 92631.

The Data Controls Division of Airborn Electronics Corp. has announced the Analyst 2, a portable RS-232C digital test set and data line monitor.

The unit is said to perform multiple digital tests. It features a recessed, 32-character, electro-luminescent backlit display; a 512K-byte, nonvolatile, static random-access memory; a capture and review function. Other attributes include data monitor high-display control characters in English and menu-driven programs.

The Analyst 2 costs \$995. Data Controls Division, 4221 Airborn Drive, Addison, Texas 75001.

Network Communications Corp. has announced the 6630 Network Probe, a system of diagnostic instruments for high-speed networks.

The 6630 Network Probe is said to handle real-time monitoring up to 72K bit/sec. for fully decoded X.25 and Systems Network Architecture data full duplex and 64K bit/sec. bit-error rate test/block-error rate test capabilities.

Functions include data line monitor, RS-232 lead status monitor, programmable DVOM, power-line monitor, programmable emulator, speaker monitor, protocol analyzer and decision-level monitor, according to the vendor.

The 6630 Network Probe is priced at \$4,995.

Network Communications, 9600 W. 76th St., Minneapolis, Minn. 55344.



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SYSTEMS & PERIPHERALS

HARD TALK



Donna Raimondi

Science mart battle brews

Mini- and near-supercomputer vendors are gearing up to do battle with each other as they feel the rumblings of a shakeout in their industry.

The scientific systems, which range in size from high-end superminicomputers to low-end supercomputers, have earned names like minisuper, near-super, Baby Cray and Crayette after supercomputer vendor Cray Research, Inc. The performance range is vast, and some of the many systems will even surpass Cray superiors if they attain what their creators set out to build.

Less than a year ago, when the Baby Cray family talked comparisons, they measured their systems against Digital Equipment Corp. VAXs. Now, while some still compare with VAXs, most of them pit their systems against other minisuper companies. Compilers, operating systems, disk-access methods and marketing ploys are bursting forth from these vendors.

Boosting code efficiency
Culler Scientific Systems Corp. announced a compiler that uses expert system techniques to optimize Fortran for parallel execution and dynamic hardware for instruction sets tailored to specific application packages.

The vendor claimed that the improvements gave Culler a "four times greater code efficiency" than Alliant Computer Systems Corp. and Convex Computer Corp. machines. Before the Culler compiler, Alliant's FX/Fortran had been the only commercially available compiler that could run parts of customers' existing Fortran programs in parallel. But even as Culler made its claim, Alliant released improvements of its compiler and a raft of enhancements that the firm claimed can speed I/O by 400% and computation time by

Continued on page 55

IBM offers credit on 3380 disk drive replacements, adds printers

BY JAMES CONNOLLY

CW STAFF

RYE BROOK, N.Y. — IBM has announced a \$16,000 special sales promotional credit for users who want to convert single-density IBM 3380 disk drives to double-density drives.

The offer was one of several peripheral announcements tied to IBM's recent introduction of new models in its 3390 main-frame family.

The \$16,000 credit, which one user notes is slightly more than he has previously been able to receive in trading in the older 3380s, is available until May 29 for users replacing standard density 3380 direct-access storage devices (DASD) with the 3380E dual-density DASD.

The credit announcement came as IBM began replacing parts of the head-disk assembly on out-of-production single-density

3380 Models A04, B04 and A44 due to design problems. The last price for a string of four 3380E drives is \$416,900.

Other announcements
IBM also announced the 3800 Printing Subsystem Model 6, which IBM said is an intermediate speed version of its main-frame laser printer. The Model 6 replaces the 3800 Model 1, which is no longer marketed. The 3800 is an electrophotographic (indirect) printer.

The Model 6, with a print speed of 134 pages/min, was designed to be upgraded at a future date to the 230 pages/min 3800 Model 3. The new model also features the same print density as the Model 3 at 240 by 240 dot/in., and advanced function printing to produce images, text, graphics and forms. The Model 6 costs \$175,000 and will be available during the second quarter of this year.

In another mainframe printer announcement, IBM introduced the 4248 Line Printer Model 002 as a replacement for the Model 001.

The Model 002 was designed to print 4,000 lines/min, compared with the Model 001's 3,000 lines/min. Other improvements include print density on multiple forms comparable with that of the IBM 3211 printer and ergonomic enhancements such as the ability to do 20 job set-ups for instant recall.

The Model 001 can be field upgraded to the Model 002. IBM said the Model 002 is intended to provide a growth path for users of the IBM 3211, 4245, 3203 and 1403 printers.

The Model 002 will also be available during the second quarter and costs \$75,000.

Unisys package edges out IBM option in Chicago hospital system upgrade

BY JEAN S. BOZMAN

CW STAFF

CHICAGO — When the time came to order a mainframe at the University of Chicago Medical Center last year, the choice was between IBM's 3080 and Burroughs Corp.'s A 15.

It was a tough decision — one that would determine the course of computing for years to come at the hospital complex, a 700-bed facility that also serves 1,000 outpatient cases daily in Chicago's South Side.

After requesting bids for an IBM 3081 Model K and a Burroughs A 15, both dual processors, the decision was made not on the cost of hardware alone but on the cost of supporting the existing Burroughs hospital-management application. Burroughs has since merged with the former Sperry Corp. to become Unisys Corp.

"We had no reason to leave the Burroughs world, and we did have reason to stay," says Mirdu Sekhar, director of information services. A careful analysis, she says, showed that the IBM solution would have cost three times as much due to the cost of converting the Cobol-based Burroughs hospital management

system to IBM Cobol. In October, the university became the second U.S. site to install a Burroughs A 15-1.

"It was the applications solution that drove the decision — not the features on the competing pieces of hardware," Sekhar says. The package, the Burroughs Hospital Information

System, had been running on a B7800, which was running out of capacity. The application itself is the lifeblood of the center's patient-care system, Sekhar says. It creates a single data base containing both patient-care information and financial statements on each step of patients' treatment. She says it is not exactly duplicated in the IBM world.

"It's a tremendous management tool and a research vehicle," according to Sekhar, who has directed MIS operations for five years. "It enables you to track everything that's happened to a patient from the time he enters the hospital until he leaves."

Doctors can ask MIS managers for data base extracts based on ad hoc queries based on patient age or disease symptoms. The result, Sekhar says, is a new way of evaluating the efficacy of certain treatments as well as a way to make a cost/benefit analysis of the treatment.

Sekhar's philosophy of MIS management has a lot to do with the way the hospital views its computing resource — the hardware is there to run an application, not the other way around.

Continued on page 51

DEC ups MicroPDP mini line

Winchester hard disks incorporated in units

BY STACY GIBSON

CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. recently announced more powerful disk drives for its MicroPDP-11 minicomputers.

In addition, DEC announced it will offer upgrade kits later this year that will convert lower level MicroPDP-11 computers to top-of-the-line MicroPDP-11/83s.

DEC said it will offer two new standard configurations of the top-of-the-line PDP-11/83, each incorporating the company's recently introduced RD54 150M-byte, 5 1/4-in. Winchester technology hard disk.

In addition, two standard MicroPDP-11/53 computer systems, incorporating half-height RD32 42M-byte Winchester technology hard disks, were introduced.

Utilizing the half-height disk allows users to stack two disk drives in the space of one larger disk drive. In this way, a user can mix and match floppy and hard disks, according to a DEC spokesman.

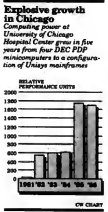
MicroPDP-11/53 standard systems with 1M byte of memory, a 42M-byte disk drive and 95M-byte cartridge drive are priced from \$14,000.

MicroPDP-11/83 standard systems with RD54 disk, 2M bytes of memory, a 95M-byte cartridge drive and a 16-line multiplexer are priced from \$26,500.

RD54 disk add-on units are priced from \$7,900. All are available immediately.

Inside

- Sequent adds synchronous communications controller. Page 50.
- Dual annotations VME based multiprocessing unit. Page 55.
- Systech unveils host adapter. Page 56.
- Xerox Marathon copier line expanded. Page 57.



Firm adds wide-area network options

Processor, X.25 capability let Sequent systems talk with other vendors' units

BY ALAN J. RYAN
A 175427

PORTLAND, Ore. — Sequent Computer Systems, Inc. recently announced its Synchronous Communications Controller (SCC) hardware and compliance with the X.25 international standard communications protocols.

The products enable Sequent's Balance parallel systems to communicate with other systems over public and private data networks and provide a means of routing data over nationwide and international networks.

"It gives us a wide-area networking capability. What that will do is let us speak to other vendors' computers that support the X.25 protocol," said Joanne Kahn, Balance systems product manager. She said those vendors include IBM, Digital Equipment Corp., Honeywell, Inc. and other minicomputer vendors.

The SCC is an intelligent communications processor that interfaces the Intel Corp. Multi-

the system from conversion overhead, and can be downloaded from Dynix. There is a choice of a packet-mode interface or a data-mode interface.

Dynix X.25 facilities allow re-

move asynchronous terminals to log onto the Sequent host. Dial-up and leased lines are supported, with line speeds from 1,200 to 64K bit/sec. Dynix X.25 also provides user-level facilities for

file transfer, mail and remote command execution between Sequent systems.

Price of the basic kit, with two ports, is \$16,000 and includes controller board, hardware for the ports and software.

Sequent and Clinicom, Inc., in Boulder, Colo., have signed an OEM resale agreement in which Clinicom will offer the Sequent Balance 8000 and 21000 parallel

computer systems as part of its Clinicare Bedside Information System.

The Clinicare system uses a portable, wireless hand-held terminal that communicates to a central Sequent Balance 8000 or Balance 21000 system. The terminal is a two-way communication terminal used to document and access patient care information at the time care is provided.

"It gives us a wide-area networking capability. What that will do is let us speak to other vendors' computers that support the X.25 protocol."

JOANNE KAHN
SEQUENT COMPUTER
SYSTEMS, INC.

bus in Sequent Balance 8000 or Sequent Balance 21000 computers and is supported by Dynix, Sequent's multiprocessing version of the Unix operating system.

The company's Dynix X.25 software offers wide-area networking. It facilitates communications with other vendors' computers through CCITT X.25, X.29, X.3 and X.28 protocols. It also allows Sequent systems to exchange data with public and private packet-switching networks. Dynix X.25 is fully integrated with the Dynix multiprocessing operating system and provides Layers 1 through 3 of the OSI networking model, according to Sequent.

The SCC is available with two to four ports, with each port providing an independent full-duplex channel. The vendor claimed that two ports per board can support full-duplex direct-memory access (DMA) and line speeds of 64K bit/sec, while non-DMA ports support lines up to 19.2K bit/sec. The X.25 and X.29 protocols run on the communications board, off-loading

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Unisys

FROM PAGE 49

"As the technology specialists in this hospital, we have the responsibility to look at computers as means to get a job done," she says. And while most vendors, Unisys and IBM included, try to sell a single-vendor solution, that is not the way things have turned

out at the medical center.

The consumer-based approach resulted in a second computer room full of Digital Equipment Corp. machines, including a VAX-11/780, a VAX 8500, a PDP-11/44 and a Microvax II. The DEC machines support critical applications for the hospital's obstetrics, radiology, laboratory and outpatient billing departments. The DEC machines pass

information to the A 15 through a Unisys CP 9500 front-end processor. The network allows real-time updates in the central data base. Under these conditions, the A 15 handles up to 9,000 transactions per hour.

A consequence of the Unisys and DEC decisions is a lack of IBM compatibility — other than that provided by standard networking protocols to IBM's

SNA/Synchronous Data Link Control. But the medical center compensates by diverting most administrative batch processing to the University of Chicago's Amadahl Corp. 5860 mainframe. Each month, staffers walk over 12-in. 6250 bit/in. tapes with payroll information to run on the Amadahl machine.

Researchers also use the Amadahl system for statistical ana-

lyses of patient data run on a dual-up basis under SPSS, Inc. or SAS Institute, Inc. programs — which are not supported on the A 15.

The applications-first philosophy says the MIS organization's task is to select and maintain hardware to drive solutions selected by medical professionals. For this reason, the DEC machines might one day be upgraded to a DEC Vaxcluster to improve disk support and to promote file sharing.

XEROX

Response time boosted

Certainly, response time on the Unisys side of the shop was greatly boosted by the upgrade to the A 15. The system created extra capacity for the 2,000 end users, who did up the mainframe from Unisys B 255, DEC VT 100s and VT 200s and IBM Personal Computers emulating Unisys terminals. The A 15 now runs just 82 of a possible 96 communications ports, but an increase in the number of ports is being evaluated.

Expanding the number of communications lines would not have been possible before the A 15 came along. The B7800 had been running at 80% to 90% of capacity. The 24M-byte A 15 runs at less than 40% of capacity most of the time. That means the hospital's end users have second or subsecond response times on their PC or terminal screens.

"When we switched over from the B7800, the change in response time was really dramatic," Sekhar says. "Before, we had as much as 10- to 12-second waits, and after the A 15 came on-line, response time was down to a second or less."

"It's been like opening up new lanes on a highway," Sekhar continues. "Adding the A 15 will allow us to support more applications as we go along."

Before the changeover, the A 15 was able to address just 6M bytes of main memory at a time, Sekhar says. Reconfiguration was carried out on two smaller Unisys A 3 processors, which share the A 15 computer room.

Generally, these machines are used for off-line software development. To make the change, some hardware features had to be added over a period of seven hours. Additional software changes will take another one to two hours and are expected to be completed this week.

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Genicom 3000 Series printers are available in a variety of models, from the compact Genicom 3000 Series printer to the large Genicom 3000 Series printer. So no matter what you need, the Genicom 3000 Series has you covered.

Dual Systems adds 25-MHz VMEbus unit

BY ALAN J. RYAN
OF 10/87

BERKELEY, Calif. — Dual Systems Corp. has introduced a 25-MHz VMEbus-based multiprocessing unit and a VME I/O module.

The VMPU-4M multiprocessing unit is optimized for a virtual-memory unit environment based on a 25-MHz Motorola, Inc. 68020 microprocessor. With 4M bytes of memory, it features four times the memory of Dual System's earlier released VMPU-32, the vendor said.

It features a 68020 central processing unit, a Motorola 68851 memory management unit and a Motorola 68881 floating-point coprocessor.

The company said the unit has a zero-wait-state performance obtained through the use of a software-selectable 2K-byte logical data and instruction cache that ensures no-wait-state operation for typically 70% to 90% of the 68020's bus cycles.

The on-board memory reportedly features an access time of 115 nsec and a cycle time of 200 nsec. The board also includes up to 64K bytes of on-board erasable programmable read-only memory.

VME address space access VME extended, standard and short address space can be accessed, and dual-port memory can be accessed by both standard and extended masters.

The unit also features a board-to-board mailbox interrupt that allows multiple VMPU-4M boards to interrupt one another. Dual-port memory and cache memory allow multiple VMPU-4M boards to share the system bus.

The VME I/O module, the Dual IOSP, provides serial and parallel ports for asynchronous terminals and printers and computer-to-computer communications. It provides six serial and two output-only parallel ports and offers RS-232 ports and parallel printer ports in systems that have communication processors using the Motorola I/O bus, Dual said.

The IOSP was designed as a companion to the vendor's VMPU VMEbus I/O Processor Board but will reportedly also operate with other I/O bus masters.

Science mart

FROM PAGE 49

up to 56K.

Based in Richardson, Texas, the rapidly growing Convex — maker of a minisuper that can run VAX software on a vector processor — and Alliant, in Littleton, Mass., both went public during 1986. Customers say the firms keep close tabs on each other. "Alliant paid a lot of attention to us, particularly when they saw that they were moving into second place with us against Convex," one Alliant FX/8 owner says.

Scientific Computer Systems Corp. (SCS), based in San Diego, will spend this year enhancing its connectivity options, a spokeswoman says. The vector processor machines can communicate with VAXs and Cray systems, and during the next year SCS will hook up with various workstations.

Another goal is to make the SCS systems easier to use — presumably to help the transition from the current university and research sites out to the commercial marketplace.

Traditional mini makers pay attention to the success stories coming out of this relatively new marketplace. Prime

Computer, Inc. recently pronounced a scientific minisuper that will use parallel and vector processing techniques. DEC has been researching parallelism and other techniques, such as reduced instruction set computing, to beef up its traditional strengths in the engineering and scientific fields.

IBM itself has become more talkative about its parallel projects. While technical problems will keep Big Blue's massively parallel systems in research mode for years to come, the company has committed new resources and people to optimize scientific use of its 3090 mainframe.

Sequent Computer Systems, Inc., in Portland, Ore., has made inroads into the business arena in addition to maintaining its traditional scientific turf.

Upcoming announcements should lay out efforts to appeal to more business users through third-party software arrangements and support of protocols needed by business.

"Before, when we sold mostly to academic customers, TCP/IP Transmission Control Protocol/Internet Protocol and Unix were enough. Now we are making an effort to offer IBM Personal Computer

interconnects, X.25 protocols and other things that are less traditional for us and more important to business," a spokesman said.

Meanwhile, Dallas-based Flexible Computer Corp., initially a promising contender in the parallel marketplace, did not get enough of the parallel pie to stay healthy. In December, the company said it might not be able to raise enough money to continue, but efforts so far this year have been encouraging. The firm received \$1.3 million from Swiss and American investors by the end of January as it expects to receive by the end of February, a spokesman says. The money will help Flexible pay its outstanding bills, "and it gives us some breathing room," the company says.

What this all means for scientific and engineering users is that there are a lot of choices out there right now. As happened with minisuper and microcomputers, chances are pretty good that some companies will dominate while others fall by the wayside. At this point, it is too early to tell who the big winners will be.

Ramond is a Computerworld senior writer.

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NEW PRODUCTS

Processors

Systech Corp. has introduced the HPS-6945, a VMEbus-compatible host adapter for its Unplug data communications subsystem.

The Unplug subsystem is made up of High-Performance Serial (HPS) host adapters and HPS cluster controllers.

The data communications subsystem can support up to 128 serial devices occupying a single expansion slot in the backplane of a host computer.

The HPS-6945 features a 12.5-MHz, Motorola, Inc. 68010 microprocessor with 512K bytes of zero wait-state parity random-access memory.

The adapter costs \$1,770 in quantities of 100.

Systech, 6465 Nancy Ridge Drive, San Diego, Calif. 92121.

Micro Memory, Inc. has announced its MM-9080D dynamic random-access memory (RAM) modules for Multibus I systems.

The MM-9080D provides 2M-, 4M-, 6M- and 8M-byte memory modules using 256K-byte dynamic RAM chips. Cycle and access times are 275 and 185 nsec, respectively.

The dynamic RAM modules use odd-parity generation and checking for each byte.

Parity output status is displayed on an I/O register whose address is jumper selectable in the 64K-byte I/O map.

Other features include module selection on 64K-byte boundaries for the starting and ending address and on-board transparent refresh and orientation of the memory chips so that maximum airflow is available.

The MM-9080D with 8M bytes costs \$1,895.

Micro Memory, 9540 Vassar Ave., Chatsworth, Calif. 91311.

Sequent Computer Systems, Inc. has announced a synchronous communications capability for its Balance family of parallel computing systems.

The capability consists of the Synchronous Communications Controller hardware and the X.25 communications protocols.

The capability is said to enable Balance systems to communicate with other systems over low-cost and private-data networks and provide a means of routing data over both nationwide and international networks.

A single Sequent parallel computing system supports up to eight synchronous controller boards, according to the vendor.

Each board supports two or four ports. Each port provides a full-duplex channel.

Balance systems are priced from \$60,000 to \$500,000.

Sequent Computer Systems, 15451 S.W. Koll Pkwy., Portland, Ore. 97006.

Computer Design & Applications, Inc. has announced the MicroMSP-4, a single-board array processor for Digital Equipment Corp.'s Microvax II.

The MicroMSP-4 array processor does real-time and numerically intensive signal and image processing, according to the vendor.

In quantities of 100, the MicroMSP-4

is priced at \$5,950.

Computer Design & Applications, 411 Waverly Oaks Road, Waltham, Mass. 02154.

Terminals

Wells-Gardner Electronics Corp. has introduced the K7000 integrated family of interactive color displays.

The single LED touch screens are available in 13-, 15-, 18- and 19-in. sizes featuring both standard CRTs and full square flat-face tubes. Display resolution ranges from 320 by 240 to 640 by 240 with a variety of horizontal and scan fre-

quencies, the vendor said.

The 13-in. size is priced at \$700 and the 19-in. size costs \$800.

Wells-Gardner Electronics, 2701 N. Kildare Ave., Chicago, Ill. 60639.

Decision Data Computer Corp. has enhanced its 3781 15-in. screen workstation for the IBM System/34, 36 and 38 environments.

The workstation now features printer capabilities to support 5224/5225 text-only emulation as well as 5255 emulation. A standard screen dump capability is provided via the RS-232C port.

Other features of the 3781 include a 122-key keyboard, a detachable coil cable and a five- to 20-degree tilt range for the display screen.



Decision Data's 3781 workstation

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RAMIS.

The 3781 is priced from \$1,650. The workstation printer capability is priced at \$400.

Decision Data Computer, 400 Horsesham Road, Horsesham, Pa. 19044.

Printers/Plotters

Roland DG has announced the DXY-885 and the DXY-990, both A/B-size plotters.

The DXY-885 is an eight-pan flatbed plotter capable of working at a speed of 12 in./sec. It uses standard RS-232C serial and Centronics Data Computer Corp. parallel interfaces and Hewlett-Packard Co. HP-GL emulation.

The DXY-885 features automatic pen-capping.

The DXY-990 adds an electrostatic paper hold, an LED coordinate display and manual pen-speed programming, according to the vendor.

The DXY-885 costs \$1,595, and the DXY-990 costs \$2,195.

Roland DG, 7200 Dominion Circle, Los Angeles, Calif. 90040.

Bruning Computer Graphics has announced a plotter, called the Zetadraf 900.

The single-sheet, A-to-E-size plotter is said to require 45 in./sec. pen speed.

The product features built-in preset programs. It prints on bond, translucent, vellum or mylar media.

The Zetadraf 900 has an eight-pan cartridge that accepts a labyrinth nylon tip

and labyrinth liquid roller in 10 colors or liquid ink pens in four colors, according to the vendor.

The Zetadraf 900 costs \$7,950. Bruning Computer Graphics, 777 Arndt Drive, Martinez, Calif. 94553.

Xerox Corp. has announced the Xerox 1065 Marathon copier.

The copier is said to feature 63 copy/mim speed on letter- or legal-size paper.

Other microprocessor controller features of the product include automatic double-sided copying from single- or double-sided originals and automatic reduction and enlargement.

The Xerox 1065 Marathon copier is also said to feature margin shift to the right or left on one or both sides of the pa-

per, automatic covers insertion and automatic contrast control.

Two versions of the product are available.

One version has a recirculating document handler, and the other has an automatic document handler.

The Xerox 1065 Marathon copier is priced from \$23,095.

Xerox, Xerox Square 006, Rochester, N.Y. 14644.

Xpoint Corp. has announced the Xpoint 6225. Xpoint 6225 is a 400 or 800 line/mim shuttle matrix printer.

The product has the ability to provide play compatibility with both the IBM 5294 and 5251 cluster controllers, according to the vendor.

The printer is said to emulate the 5225 Model 3 and 4214 printers, both of which are offered by IBM.

Features of the product are said to include bar code printing, data processing, letter-quality printing and line and block graphics.

The printer comes standard with a quietest cabinet.

The Xpoint 6225 400 line/mim printer costs \$7,950; the 800 line/mim version costs \$9,950.

Xpoint, 5600 Oakbrook Pkwy., Norcross, Ga. 30093.

Able Computer has announced the VMZ/LP II. The product is said to be a dedicated direct memory-accessing line printer controller.

The controller is said to support print speeds of 5,000 line/mim at a column width of 132.

The VMZ/LP II is said to feature a 256-char. buffer that can be enabled or disabled through an on-board switch.

Formatting capabilities include tab extension, line wrap, upper-to-lower-case conversion and form-feed to line-feed conversion, according to the vendor.



Able Computer's VMZ/LP II

The VMZ/LP II is said to emulate Digital Equipment Corp.'s DMF32 controller's line printer functions.

The VMZ/LP II line printer controller is priced at \$1,795.

Able Computer, 3080 Airway Ave., Costa Mesa, Calif. 92626.

Interpreter, Inc. has announced the Laser Xchange. The product is an interface product that is said to allow Xerox Corp. Memorywriter documents to be printed on the Xerox 4045 Laser Printer.

The Laser Xchange is said to read Xerox Memorywriter diskettes and send specified documents to the Xerox 4045 for printing.

According to the vendor, one Laser Xchange unit in combination with a Xerox 4045 provides walk-up printing capability.

Continued on Page 58

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Continued from page 57

ties to any number of Memory-writer users.

No special format coding is required.

Laser Xchange is priced at \$3,995.

Interpreter, 11455 W. 48th Ave., Wheat Ridge, Colo. 80033.

Power supplies

Mendon Electronics Corp. has announced the **Monitron 2000** power-line monitor.

The monitor is said to detect and classify power-supply irregularities such as spikes, high and low voltage, dropout and power failure. According to the vendor, response time is 0.5 microseconds.

It was designed to provide constant visual access for checking its functioning status and power-supply condition. It can be plugged into a standard electrical outlet and is compatible with computer systems and power-protection equipment.

Monitron 2000 costs \$299.

Mendon Electronics, 3800 Motown Ave., Pittsford, N.Y. 14534

MPL Power Systems, Inc. has announced its **Load Isolation Set (LIS)** for protection of critical computer loads.

According to the vendor, LIS protects from up to 98% of all electrical aberrations. Stored energy is said to allow the LIS to ride through total power outages of up to 500 msec.

The LIS consists of a motor generator set. Sizes range from 30 to 1,000 kVA and can be paralleled for redundancy or capacity without the use of additional paralleling cabinets.

Single modules are priced from \$19,000 to \$140,000.

MPL Power Systems, 3011 Lincoln Ave., Richmond, Va. 23228.

Auxiliary equipment

Secure Technologies, Inc. has announced the **Stationlock security lock** for Digital Equipment Corp.'s VT200 family of terminals.

The Stationlock replaces the on/off switch with a key-operated Medeco security switch lock. It prevents access to systems by securing access to the unattended terminal.

The Stationlock keys can be individually appointed or master keyed.

The Stationlock costs \$89.95 per unit.

Secure Technologies, 297 High St., Dedham, Mass. 02026.

Huntron, Inc. has announced the **Huntron Tracker 5000**, a troubleshooting system based on a personal computer.

The Tracker 5000 is said to be a benchtop circuit-tester that identifies standard components in electronic devices by energizing solid-state devices with an AC signal across two points and reporting abnormal responses.

According to the vendor, the system consists of a smart diagnostic system controlled by an on-board microprocessor and an external personal computer operating under Tracker 5000 software for test-sequencing and data analysis.

The Tracker 5000 costs \$7,995.

Huntron, 15720 Mill Creek Blvd., Mill Creek, Wash. 98012.

Maintenance equipment

Datatec Industries has introduced the **Loop Diagnostic Panel (LDP)** to aid in the troubleshooting of IBM point-of-sale (POS) retail systems.

The manual switching cabinet features built-in IBM diagnostics that simulate the IBM POS data stream. The LDP accommodates from eight to 64 terminals and can be programmed to han-

dle loop speeds of 2,400, 4.8K and 9.6K bit/sec. Multiple loop systems can be handled by the product, the vendor said.

Available in increments of eight, the LDP is priced from \$515 for an eight-position model to \$1,260 for a 64-position model.

Datatec Industries, 45 Smith St., Englewood, N.J. 07631.

Tektronix, Inc. has announced the **1205, 1220 and 1225** general-purpose logic analyzers.

The logic analyzers are said to feature a user interface with a large display, Apple Computer, Inc. Macintosh-like pop-up menus and on-screen Help.

The 1225 logic analyzer ac-

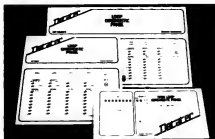
quires data at up to 25 MHz on 48 channels or up to 100 MHz on 12 channels.

According to the vendor, the 1220 logic analyzer offers the same mainframe package, display, software and user interface as the 1225. It also offers 32 channels of data acquisition, eight external clocks and four external qualifiers.

The 1205 logic analyzer acquires 24 channels of state data: eight channels at 25 MHz, four channels at 50 MHz or two channels at 100 MHz.

The 1225 costs \$5,395. The 1220 costs \$3,995 and the 1205 costs \$2,495.

Tektronix, P.O. Box 12132, Portland, Ore. 97212.



Datatec's Loop Diagnostic Panel

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Operators learn faster with a choice of keyboard layouts. AusDataEntry lets you choose from PC keyboard layouts that emulate keypunch or 3961 terminals.

To see how your data entry can be more productive, call 800-255-3509 ext. 55 for an evaluation package of AusDataEntry. Or write to AusDataUSA, Ltd., 2126 Wilshire Avenue, Santa Clara, California 95051.

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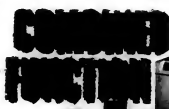
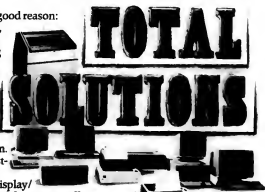
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IN DEPTH

Maintenance manager: How to be a drill sergeant and a good guy, too

BY RICHARD LEFKON

Bill's first call after being made systems maintenance manager for catalog sales came from Frank, the vice-president handling cost containment. Could Bill switch the weekly goods pricing tape by the end of the quarter, which was in six weeks? he asked. It would save the firm at least a thousand dollars a month.

"Sure," Bill replied, "a tape's a tape."

The next week, Bonnie, a systems analyst, headed straight for Bill's office after the finished talking with Frank.

"This guy has already given notice to the old pricing-tape vendor but hasn't signed with the new one," she said to Bill. "I don't have the booklets to compare the fields — I don't even have the formats. How will we run next quarter's catalogs?"

Since Bonnie was on vacation by the time Bill got the layouts and thick explanatory books, he gave them to Howard, a good junior programmer, who, by the time Bonnie returned to work two weeks later, had a read-and-print program running.

"I'll need another programmer this week," Bonnie told Bill, "and then I want to test the whole batch process in the final week."

"I can take Howard off the Social Security regulations reprogramming," Bill replied, "but the head of sales himself wants the year-end employee bonus modification tested next week."

Because of the usual delays, as well as a lack of vendor coordi-

nation, the pricing enhancement barely reached production in time to update prices in the quarterly catalog. The programmers themselves at least made sure that each number got into a similarly labeled field in the data base.

The firm was hit with a federal reprimand for missing the final implementation date on its Social Security reprogramming; the dollar repercussions from that did not appear until months later. Much sooner — two days into the new quarter — came an avalanche of phone calls from salesmen frantic that the published quarterly catalog prices were way off.

"That's because while the new tape gives quantities in dozens, the old one used quantities in scores [twenties]," said Hank, one of the old-timers. "I did notice that — I'm just not big on volunteering information."

This story, a composite based on the real experiences of sever-

al companies, raises a number of questions. Did this maintenance manager do any of the following:

- Define his tasks before committing resources?
- Make sure the service agreements were final?
- Perform cost/benefit analyses?
- Get the users to rank their priorities?
- Require adequate testing and allow for regression testing?
- Get user validation of results?
- Coordinate testing by different user areas?
- Guarantee adequate technical input?
- Provide for staff continuity?
- Nobody likes to hear the alarm clock in the morning. But we make sure it is on every night because we know it somehow benefits us. Similarly, reasonable controls on programming efforts may constrain the freedom of analysts, programmers and users, but they come to accept these controls because they realize the wisdom of implementing some

safeguards, both on the work itself and on work flow emanating from the users.

An inexpensive on-line tracking and management system provides documentation of these controls while holding down the required signed documents to less than one loose-leaf binder per year.

True, many status reports will be distributed, but only signatures need be preserved on paper — the detailed data can be hidden away on disk.

Coping with the real world

Universal thoroughness is more important in maintenance and enhancement programming management than in new development, where you get to invent your own world.

Maintenance management must cope with a world that already exists, inhabited by users, resources, code and personalities, none of which the manager has created and none of which is



- Managing a maintenance staff
- Four checklists help keep control
- Priorities: There are no 'special cases'

Lefkon, an assistant vice-president for Citicorp N.A. in New York, is president of the Financial Industries Chapter of the Data Processing Management Association. He also leads systems and management seminars for New York University's Information Technology Institute.

100% dependable.

The difference between the two worlds is a study in contrast in four areas: task definition, scheduling, standards and continuity.

Task definition. In new development, the objective should be determined at the start; in maintenance, user perceptions of fixes and enhancements may change constantly.

Scheduling. In development, the long-term project completion date is the only deadline carved in stone; enhancements must be made in time to keep user products competitive or to comply with new regulations.

Standards. Development teams are selected in part because they will do things in the way the project mandates.

By contrast, at least some maintenance staff members may not cooperate fully, feeling their own ways are more beneficial to themselves or the organization than the new manager's.

Continuity. Personnel with similar skills tend to behave as equals when a development effort gets rolling; however, in maintenance, there is the risk that certain veteran staff members

may exercise negative influence over otherwise productive colleagues.

These four areas are ones in which the newly arrived manager of software maintenance and enhancements may be greatly challenged.

The responsibilities of this rich but often unappreciated position can be held to reasonable proportions by setting up a firm

structure to make most procedures routine. This practice is preferable to treating each software event as unique or, as in development, trying to mesh all tasks into a single, patterned whole. Crucial to the establishment of this structure are the forms that would be used to explain, control and expedite the tasks.

A clear understanding

In many ways, the definition of a task is more urgent than its subsequent management. If the work agreed upon is not clearly understood — by user, technician or manager — even a well-structured control system will leak like a well-structured sieve.

Perhaps the most valuable advice managers can gather from this article is to request from users, write down and publish the most detailed paragraph possible concerning the task.

IF THE work agreed upon is not understood — by user, technician or manager — even a well-structured control system will leak like a well-structured sieve.

The more the planned change is defined in user — not programmer — terms, the more likely users will be to approve completed work. This way, they can see that nothing less, more or different was requested initially.

The first defense for scarce systems resources is the service request form, on which the user first asks that a specific task be done.

Next, a user test plan is completed up front; users who know what needs to be done define their topics objectively.

Finally, while most shops differ on the subject of formal programming specifications, maintaining a standard required form of some sort ensures that at least minimal investigation and planning take place.

Service request form. Basic to any successful maintenance and enhancement effort is the initial service request form.

This form should identify the relevant system, category of change, dates submitted and received, name and telephone number of user contacts and authorizer, other departments potentially affected, a sequential tracking number, a brief title and a longer description and business justification for the change.

On the form's reverse side, a second page might be printed, consisting of two large columns for each of a dozen or so categories.

For each major category affected by the request, users de-

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It could be the increasing realization among

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If users complete the test plan before any programming specifications are written, they will still recall clearly what system features failed, how the requested change would better the situation and exactly what would have happened had the fix or enhancement been in place.

The process of thinking things through may bring to light either limitations or other related tasks that can be noted easily and publicly documented as a service request modification.

Although scheduling "changes to changes" as the second phase of the project is generally the best practice, sometimes users' test planning uncovers an urgently needed realignment.

"We were phasing in a new method to

WE ISSUE addenda to the specs all during the project. If the coders don't get the addendum, the system doesn't get the change."

BRENDA WILLIAMS
COLUMBIA HOUSE DIVISION OF CBS, INC.

track costs," notes Barbara Shaver, manager of programming for Revco Drug Stores, Inc. in Twinsburg, Ohio. "The analysts said, 'We don't need that part of it until Phase III.' But in speaking with the user, we discovered we needed it in Phase I or else the whole Phase I system would not work."

"We had to write an addendum," Shaver

continues. "If we had not, we probably would have spent another four months fixing the original Phase I. As it was, it only took us one additional week."

Specification. After users describe the business use and desired test results of a requested change, it is generally up to a systems analyst to translate the business need into a programming specifica-

tion. A checklist or fill-in form is a good place to start (see chart page 68). Listing items such as files that will be affected is worthwhile, even for small or quick jobs. Such a form is very easy to fill out for the simplest tasks, essentially by writing "NA" (not applicable) in almost every category. This helps the programmer by clarifying which system or code components can safely be bypassed.

Whatever format is used, coding specifications should stand on their own; a coder should not have to consult the specifications' author. Also, the specifications should be updated and reissued if the functional need changes.

Brenda Williams, project manager with the Columbia House Division of CBS, Inc. in Terre Haute, Ind., points out, "Every time the programming specs have been written before a project, if the project changes and the specification does not, you cannot take that document as what actually happened."

"We issue addenda to the specs all during the project," Williams continues. "If the coders don't get the addendum, the system doesn't get the change."

At the discretion of systems management, users may be given a copy of the completed programming specifications form. They may not understand all its contents, but it provides documentary support, both for the time estimate it contains and because of its relevance to user requests.

Straitforwardness also helps when describing resources. Showing three real available days per programmer per week rather than five padded ones offers two benefits: It is, and appears to be, honest, and it prevents cutting into the bone if and when the day arrives that new enhancements are drastically curtailed.

Scheduling: A definite work flow
In situations in which high-level users complete for scarce programming resources, the maintenance manager must be a tactician—regularly saying no, saying nothing or saying yes but stalling any action.

All of these tactics are made less uncomfortable and more credible by having a definite flow of stages through which every work request must pass.

Initial service request and establishment of priority. The first stage starts with the initial service request. If a report is needed, the user sends a sample of the desired format. If a new federal regulation must be implemented, it, too, should be attached, with appropriate user markup. Once the user submits the service request, the systems manager, or designer, decides whether the documented request is feasible. Nothing is wrong with a calm assertion that something is impossible if it is.

Fair treatment of all users requires that, aside from production emergencies, no service requests be initiated formally over the telephone.

The sequential tracking number provides measures of currency and date priority. Regular public documentation of the descriptive title, extended detail and allocated workdays, including testing, helps focus attention on the agreed task and its cost.

Priority screening can be done within the systems department. Even if a request goes on the back burner, users will not feel totally ignored because the sequential number and title are distributed to all users every week.

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Design and time estimate. After preliminary setting of priorities, a functional design and estimated time frame for the request is established. Ballpark figures for completion — for example, six to 18 months — are recommended for large projects.

Such a project could itself require at least a day or two to estimate. This time should not be expended if users do not confirm

that the request warrants immediate action. The time is better spent producing a one-time report of moderate importance rather than a cost estimate for an unsponsored project.

Through a weekly meeting or a central coordinator, users now establish the priority of their requests, listing which should start next. It is important that the attendant systems manager con-

centrate on giving honest technical advice and not intrude on lively discussions of priorities among the users.

"I make sure not to be the bad guy when I attend the steering committee meeting," notes James Rippinger, director of MIS for Grenada Maritime Services, Inc. in Richmond, B.C.

"I go in there carrying my list of proposed work items with

their anticipated costs and benefits to the company," he explains. "Representatives of the various divisions then decide collectively what is best for the company. Nobody feels there is any favoritism because — whether or not they like it — they understand why efforts are being directed toward those specific tasks."

Detailed design and user

test plan. Next, the detailed design and the user test plan for each user-approved project are developed hand in hand.

After programming and unit integration testing, users meet to work to improve upon the original user test plan. Whether in an ad hoc or regular meeting, representatives of departments that affect each other consider the change. Accounting, computer operations, programming and various other functional departments of the business pick through and upgrade the test plan.

Collectively, this group may well enhance the plan by raising issues that the person making

STANDARDS' aim is not to force programmers into lockstep but to make products routine so that they can be maintained by a trained technician.

the original request had not thought about. The group's varied viewpoints can help reveal different dangers and benefits.

Helpful standards

The user work requests and scheduling discussed so far require interaction with external departments. But within the systems department itself, steps must be taken to ensure quality and maintainability of the software products.

Standards for coding and internal program documentation are important for maintainability. The aim is not to force programmers into a lockstep but rather to make each programmer's products look and perform in a manner sufficiently routine that they can be maintained by another trained technician.

This task is a bit more difficult to do in maintenance than in development. In the latter, the bulk of the application software has already been written. It may be undocumented, styled poorly or tailored to yesterday's machine limitations and technology. And even if the logic flow were clear originally, it may have become obscured by years of successive patching.

In this case, some rules have special merit.

For instance, simply requiring the placement of a four-column modification log — date, programmer, change, purpose — at the top of each old program that has been modified means that the next programmer or other investigator knows something about the least seasoned parts of the code.

Another documentation standard — requiring an average of one comment line per procedure

Continued on page 72



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Use the right language to boost DP's perception of maintenance

BY MARK DUNCAN

Terminology that has always been biased toward development must be extended and balanced to address maintenance.

This is easy to accomplish, for in most cases, a simple word change from "development" to "maintenance" offers a convenient technique for defining the latter in the same terms as the former. For example, a development life cycle is a typical component of DP departments. But how many departments have maintenance life cycles defined with the same degree of formality and structure?

Four features characteristic of development life cycles might appear in an equivalent maintenance life cycle—structure, scope, teamwork and tools.

Structure. Generally, development is rigorously structured. It proceeds in phases, and formal sign-offs are required.

Maintenance can take on this structure, too, via a simple checklist that defines maintenance tasks as corrective, adaptive or perfective. Each type of maintenance should have specific approaches to follow, deliverables to be produced and so on.

Scope. Development work is always defined as a project. It begins with the first phase and progresses in orderly fashion through to implementation.

Maintenance work should also be defined as a project; it must be given a definite restarting point in the development cycle, and its scope should be clearly defined.

Teamwork. Development work is generally carried out in teams. If special skills are needed, they are acquired by hiring or training. A team engenders supportiveness and sharing; roles and responsibilities are defined and documented.

Maintenance programmers should also have the luxury of a support team. Designated personnel should be available to offer additional help to maintenance programmers. These support personnel must be given appropriate training in the applications they are to support.

Tools. The development process is generally supported by the latest software tools. But maintenance needs software tools specifically designed to facilitate maintenance work, instead of programmers having to make do with those tools that were purchased with development in mind.

Listed below are some software aids that might have been purchased for development. Included are questions relating to the software tools' usefulness in a maintenance context—questions that might not be part of typical selection criteria.

- **Interactive debugging aids.** In a development context, these tools enable source code to be "stepped through" in a controlled fashion, giving users the ability to alter data values and logic paths dynamically. For maintenance purposes, does the tool also offer help on potential causes of program abends? The maintenance effort can be greatly reduced if abends are diagnosed comprehensively and remedies are suggested.

- **Program code generators.** These packages generate structured code from system design parameters. In terms of main-

tenance, can the tool also restructure existing code? As old, unstructured code is maintained, it should be cleaned up and modernized whenever the opportunity presents itself.

- **Flowchart generators.** These tools generate graphic representations of the system from specifications or from source code. Can they also generate system flowcharts from job control language for maintenance?

Job control language is very susceptible to changes that go undocumented. A job that originally ran one program and produced one report may now run several

sequence-dependent programs, update several data bases and initiate other jobs—and none of this may be documented. The maintenance programmer will need to know the scope of the whole job, not just the program containing the error.

- **Source library managers.** These packages offer control, security and efficient storage for source code as well as easy, standardized access.

For maintenance, does the tool offer a built-in utility for comparing two or more source modules? Often, maintenance solutions require knowledge of the infinitesimal differences between modules, which

can only be revealed by automatic, rather than visual, comparison.

Tools for software maintenance must begin to command as much budget attention as development tools. Almost instinctively, MIS departments search for ways of streamlining their development processes with software automation tools.

But before grabbing for the latest and greatest package that is going to solve all your development problems, try modifying your selection criteria to consider maintenance activities as well. If the software tool still sounds suitable, you are probably getting your money's worth.

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Duncan is a systems analyst in the quality assurance section of a major Dallas bank.

Maintenance

CONTINUED FROM PAGE 20

line, not rigidly interleaved — encourages coders to leave blank comment lines that guide the eye and to write boxed descriptions at the start of major processes.

A good practice is to hold one or more sessions in which the programming staff consider a set of proposed standards in a meeting chaired by the systems manager. The staff is given the opportunity to modify, reword, add or delete standards subject to the manager's approval.

Such a process gets the programmers working as a group under management supervision, demonstrates to junior staff that certain good practices are industry-

KEEPING coders and the on-line system at peak availability involves human relations at least as much as technical effort. In negotiations, the confirming memo can be just as important as the deal struck, for without it, an agreement can evaporate.

wide and avoids having the staff members perceive the standards as something meaningless that management has thrust upon them.

David Weeks, currently a systems analyst with Borg Warner Chemicals, Inc. in Parkersburg, W. Va., recalls a situation when half the programmers liked the standards but half did not.

"Nine years ago, I was a programmer

at Columbus and Southern Ohio Co. in Columbus, Ohio. We had a senior programmer who brought with him the idea of structured code.

"He at Columbus and Southern Ohio hadn't heard of it up to that point," Weeks recalls. "Management liked it, so we were trained on it. We development programmers liked it and wrote all the new programs this way.

"But all the maintenance programmers didn't like it because it makes you think differently; for instance you can't branch all over and produce spaghetti code. After a year of working with it, though, they grew to like it, too, because it was much easier to maintain."

Testing

In the simplest installations, enhancements are programmed in a development environment or system and are subsequently migrated to the production environment. Placing an additional two or three distinct environments along this migration path may be preferable. Each successive library — or complete environment, including data and logon IDs — presumably maintains tighter control than the one preceding. Once a program is found to be satisfactory at a certain level of security, moving it onward protects it from inadvertent harm at that or a looser level of protection.

Once the programmer has unit-tested the code in development, an independent systems testing function can perform integration testing to ensure that individual transactions track properly through pre-existing programs. This subclass of testing need not involve users directly.

In the next physically distinct environment, the assurance testing function performs individual transaction testing from the user's viewpoint, concentrating not so much on program flow as on confirming the correct regression of those transactions through the broader system. Systems testing staff may assist here, but the program's authors are strictly excluded.

Finally, acceptance testing involves users alone, possibly enhancing the assurance testing data but closely paralleling the real business situation in which systems assistance routinely does not take place. While some batch simulation packages do exist for building canned stress-testing data files, it is often as economical and more effective to bring in the usual data entry operators to perform a live parallel test if network volume is an issue.

The human element

Keeping coders and the on-line system at peak availability involves human relations at least as much as technical effort. In negotiations with other departments, the official confirming memo can be just as important as the initial deal struck, for without it, a good agreement can evaporate.

Within and outside the systems department, issues meetings ascertain status and identify open issues. No deal or resolution is expected in these meetings, and the manager has to control the urge to reach such a conclusion.

In fact, unbiased observation and controlled communication are just as relevant as a resolution in dealing with staff supervision and system crises.

A standard requirement made by the corporate auditing department is that a proven backup site and disaster plan be established for physical plant mishaps.

This idea may also be valid for staff members: Individuals who are reputed to be indispensable should be made replaceable as soon as possible.

In a major New York financial services conglomerate, a 3,000-module real-time sales support system had been partly built up from the original minicomputer. Many of the batch reports now ran on IBM mainframes, and a mid-level outside consulting programmer had been trained in



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User support: Beyond the technical fix

BY BERNIE NACHSHEN

Aside from basic problem-tracking systems, a DF manager needs applications that show how well his technical support staff is performing. An inexpensive, personal computer-based system can uncover problems surrounding how end users and technical support staff are working together and can answer questions such as the following:

- Why is it taking an average of three days to resolve severe problems?
- Although it appears as if end users are reporting different problems, do the problems actually all relate to a single problem?
- Why is technical support swamped with so many general inquiries about facts that end users should already know?
- How many problems and inquiries are still "open" — no one has resolved the problem or no one has gotten back to the end user — and why?

Recognition of these problems can lead to the installation of corporate programs and resources that can make a more efficient and effective MIS technical support operation.

To set up such a system, DF managers should develop a system that can be displayed on the screen, ready for data input (see chart above). Most field meanings are obvious, but some are not:

Status. This is either an "O" or a "C," indicating the problem or inquiry is open — a response is pending — or closed.

Date Closed. Compare this date with the open date to see how long MIS

took to get back to the end user with the resolution. This calculation determines the value for the Response field.

Description. This is a problem or inquiry description using a key word or words, such as "log-on," "password" or "abend." Staff members can search this field to focus on specific problems or identify trends.

Severity. In this case, the range goes from 1 to 4, with 1 signifying a severe problem — "My CICS application blew up" — and 4 representing a general inquiry — "Can I have a new password?"

Possible applications

If MIS technical support receives and records 20 calls a day, by the end of the month the staff has accumulated a significant data base. In report form, this information can justify additional resources for technical support or perhaps initiate a training program that can reduce technical support's burden.

A number of possible applications are available for a technical support tracking system. One important set of statistics, for instance,

is how many end-user inquiries were handled in a month, how many were closed and how many are still open. The ones that are still open may indicate that a number of end users are steaming because no one has gotten back to them.

Using some simple data base management features, all Os or C's in the Status field of all records would be counted for each department serviced and a table produced. For example, a table in which status is matrixed against user departments (see chart below) clearly indicates that Department 460 probably feels the technical support staff provides good service.

On the other hand, I would not want to be the person calling Department 817 to ask how the employees felt about technical support. Also, someone should call the manager of Department 288 and ask if he knows why so many calls to technical support are being made and if there is a way to cut them down.

The information in the Status field can be further broken down into each technical support representative (see chart below).

Sample technical support screen

```

DATE: 10/16/86  TIME: 12:45  RESPONSE: 1
USER NAME: LARRY WILCOX  USER DEPT: 234  EXT: 9812
STATUS: C  DATE CLOSED: 10/17/86
DESCRIPTION: GENERAL INQUIRY ABOUT CHARGEBACKS TO HIS DEPT
RESOLUTION: SENT CHARGEBACK REPORT
SEVERITY: 4
TICK REF: JANE SMITH
COMMENTS: THIRD INQUIRY TODAY ABOUT CHARGEBACKS
  
```

FW 13487

If technical support personnel create a PC data base like this one when support requests come in, then support managers can gauge the success of their end-user support using hard numbers. They can also use the data in report form to justify additional resources or reallocation of staff.

clearly showing the following:

- Cathy Jones deserves a merit award.
- Someone should have a chat with Jack Haley.
- Jane Smith may be somewhat overworked.
- Work distribution among the technical support team seems to be uneven.

With a bit of thought, key words could be used to further illuminate problems.

For example, searching for the key word "password" in the description field produces a listing of records that meet this condition. These records reveal that end users keep forgetting their passwords, resulting in many unnecessary calls to technical support. Solutions to this can be passed on to end-user management.

The same could be done for "charge back," where end users seem to have lots of questions about MIS charge-

back costs or policies. Perhaps a memo to management or a clearer chargeback report is appropriate here.

Underlying factors

The MIS technical support role is usually driven by "fighting fires" and fixing the problem. Keeping the system up and allowing end users to do their jobs is MIS's No. 1 priority.

However, with the enormous power and simplicity of the PC, MIS management can look beyond the technical fix and analyze the underlying factors that produce a system's performance.

Easily produced graphics, tables and record listings that profile performance and problem recognition can justify additional technical support resources, put into place end-user training programs that can reduce the number of unnecessary calls and provide better response to your end users — the paying customers. Use your imagination. The tools are all there.

Nachshen is head of BN Associates in Cupertino, Calif., a consulting firm specializing in customer support, systems analysis and technical training.

Is technical support getting the job done?

Summary by user department

Department	Status			
	Closed	Open	All	
Dept. 456	5	8	14	
Dept. 457	3	2	5	
Dept. 458	6	2	8	
Dept. 459	0	1	1	
Dept. 477	0	1	1	
Total	35	29	64	

Summary by technical support representative

Representative	Status			
	Closed	Open	All	
Bernie Jackson	7	9	16	
Cathy Jones	20	0	20	
Jack Haley	8	9	17	
Bob Trimble	0	1	1	
Mary Brown	9	4	13	
Jane Smith	28	2	30	
Lee Simpson	6	0	6	
Ron Baker	0	1	1	
Total	67	33	100	

Monthly summaries can signal overloads — such as 20 requests from Dept. 288 — and performance problems, such as all Jack Haley's tasks being left "open" or unresolved.

batch IBM/JCL.

As the designated JCL expert, the programmer frequently exacerbated the bottleneck situation by stating that he worked for the consulting house, not the company, and would not answer inquiries except on days that his firm's account representative appeared and authorized doing so.

Noticing this, the new maintenance manager designated an enthusiastic trainee as resident expert.

With some coaching, this trainee absorbed the material and within two weeks truly was the corporate JCL leader.

Eventually all employees learned JCL, and the subsequently key consultant, who supported-

ly failed a concealed examination in his area of expertise, was released from his job.

Sometimes, a manager may hesitate to elevate — or demote — a staff member because of the person's current image. But staff perceptions of each other can be changed, even reversed, as a result of viable management support and the showcasing of the individual's capabilities.

On the programming team just mentioned, a trainee manager mistakenly held in low regard by peers because of her meager skills on the minicomputer was considered a "good person to know" after she was asked to conduct seminars on an incoming IBM technology.

A real-time system that remains volatile long after installation needed not have been poorly designed or poorly programmed. The constant pressure to install features may instead reflect a changing business product mix or a rapidly changing regulatory environment.

Testing real-time systems

User testing on a volatile real-time system requires tighter user coordination than on batch or even on a more stable real-time system.

A batch system — or the testing of distinct batch changes — could conceivably be done anytime the machine was available, as long as users were provided with comparison reports gener-

ated by the old programs against equivalent data.

Even a fairly static real-time system is easier to test because changes may be limited to one or two types of processing.

Testing changes to a volatile real-time system may involve such interaction issues as whether to implement one change on schedule when others tested in interaction with that change have failed.

Volatile real-time systems present unique scheduling problems in testing modifications and enhancements.

A planning roundtable of users is necessary because the system intermingles the effects of service requests from unrelated departments.

For example, placing this meeting on the first Monday of a two-week cycle facilitates scheduling of Day 1 on-line entry — with its follow-up batch — in the first week and Day 2 processing in time for the change to go live on the second Friday.

Rewards and crises

Maintenance/enhancement efforts depend on good upward communication. This is encouraged by showing that rewards go to those staff members who give high priority to the unit's announced needs and policies, even for small things like hand delivering the new report to a user or a human collects the "thank you" in person.

Otherwise, some individuals

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may opt for different rewards, such as the feeling of importance that they may derive from a departmental crisis.

A challenge to management is to detect that staff member who is eager to announce both inside and outside the systems department that a crisis exists and who fellow workers consider to be "always calm during an emergency and knows just what to do."

The manager must resist the temptation to buckle before what may be an invented emergency: Crisis crises aren't.

Handling the crisis

Of course, crises do occur. The real-time system crashes; a key player on the team is hospitalized; the month-end profit-and-loss statement is found to be drastically wrong only two days after its electronic handoff; a routine mishap in the batch cycle cascades into round-the-clock data entry and the concomitant need for staff coverage.

After preliminary symptoms are gathered, the management team and relevant experts convene until all conceivable causes and actions have been listed and that list is reduced to a manageable size.

Specific staff members are made responsible for resolving the crisis, and the rest are sent back to their regular tasks but remain available to that crisis team.

A single contact point for users should be established, but all systems staff should be kept abreast of the problem's current status. When can the staff resume regular operations? How late will the reports be? Which reports will initially be corrupt? What cleanup work will the user have to do? The important point here is to satisfy the user's need to know.

Minimize disappointments
Maintenance and enhancement programming is a greater challenge to manage than new development.

Clearly, administered procedures minimize the disappointments in task definition, scheduling, standards and continuity. The familiar service request form can evolve within a simple automated MIS system to produce a variety of helpful reports: Next-to-Program, Recently Completed, Soon-to-Go-Live, Overall Requests, Requests by Department.

Where sufficient detail is available, the appearance of each item becomes an unambiguous, documented service contract.

Good instructions guide users in preparing a more definitive initial request, and an automatically produced test plan form gets users to supply an additional level of task definition before any systems resources are committed.

Automated programming specification forms deter serious

GOOD instructions guide users in preparing a more definitive initial request, and an automatically produced test plan form gets users to supply an additional level of task definition before any systems resources are committed.

omissions and help both users and the software manager to understand the extent of the task. Accurate costing is essential in establishing priorities for tasks that are competing for limited systems staff man hours.

Software documentation begins with placing a modification log in old programs as they are changed. In addition, new pro-

grams should implement full standard documentation and techniques.

Testing is standardized by securing the source code as it succeeds in progressively more realistic environments.

The scheduling of new programming is done primarily at a weekly users meeting, at which the maintenance manager

serves primarily as a technical and feasibility advisor.

Continuity of system accessibility is increased by Help screens, on-line run books, automated source-code scanners and a definite approach to crisis management.

Continuity of collective staff expertise rests on cross-training, regular meetings, a clear

chain of command and the elevation of those who help the organization.

The controls established by an automated management system encourage analysts, programmers and users alike to deal with the turbulence of new development.

Good controls also help these professionals think things through in a more organized fashion than they might otherwise.

Finally, a well-managed project engenders mutual respect between staff members and users—a necessity for its successful completion.



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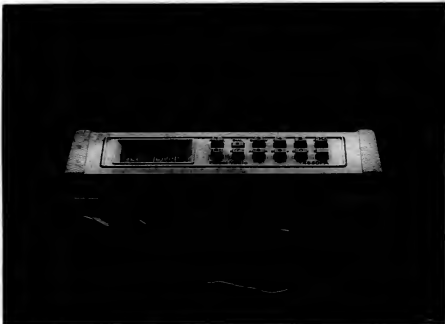
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EXECUTIVE REPORT

USERS GROUPS

The users group explosion: Do they really have influence?

BY GLENN RIFKIN

In the late 1970s, IBM decided that it no longer wanted to support VM as a system control program. It would turn its attention instead to MVS and other operating systems. News of the decision spread quickly through the user community, and both Share and Guide, the IBM large-system users groups, mobilized. Swayed in particular by several convincing presentations by Share members, IBM did something it rarely does: It changed its mind.

According to Share President Mike Armstrong, the rescue of VM from certain death is the users group's most visible success story in recent years. IBM, he points out, decided not only to save VM but, based on the enthusiastic user support, has since promoted it heavily. "As far as I know, it is now IBM's fastest growing operating system," Armstrong says.

Last year, a beleaguered Honeywell Information Systems pulled the plug on its longtime operating system, Multics. The Honeywell Large Systems Users Association (HLSUA) jumped in and formed task forces to try to dissuade Honeywell from its decision. According to HLSUA President Stan Lauck, it was the first time Honeywell had simply discontinued a product line without offering a migration path to those users.

The issue was a thorny one for Honeywell and its users group. Lauck points out that most HLSUA members — the great percentage of whom are GCOS users anyway — understood that Honeywell was making a business decision. Multics was losing money, and no large company was willing to step forward and buy into a salvation plan.

Nonetheless, Multics had a fiercely loyal user base, and



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those users were stunned and angry. "It became as much an emotional issue as a business issue," Lauck says. "Multics is not just an operating system. It's a culture."

Honeywell, Inc., which later in the year announced that it was selling its information systems business to NEC Corp. and Compagnie des Machines Bull, was clearly not changing its mind on Multics. HLSUA is now concentrating on finding a migration path for Multics users. "We represented them as best we could," Lauck insists. "We've done everything we can to help find them a migration path."

The above illustrations are not meant to compare Share with

HLSUA. Each is a viable and active users group. The two stories do, however, point out the legacy of users groups in general — that is, you win some, you lose some.

Since 1955 when Share was founded as the first computer users group, similar groups have proliferated throughout the information systems industry. Find a product, and you will undoubtedly find a users group attached to it. Find a large computer vendor, and you may find two or three users groups drawn to the company like moths to a flame.

And nowadays, neither a product nor a vendor is even necessary. Find a proposed industry standard such as Manufacturing

Automation Protocol (MAP), Technical Office Protocol (TOP) or Unix, and you will likely find a vociferous users group pushing hard behind it.

Users groups are the computer industry's political action committees, but they also serve as institutes of higher learning and as social clubs. While virtually every users group has its own diverse set of rules, parameters and relationships with the vendors — Share and Guide accept only corporate members with certain IBM mainframe installations — the common aim is twofold: to influence the vendor and to share knowledge.

"My main reason for attending Guide is to influence IBM and to gain information from other attendees," says a payment delivery systems manager at an Arizona bank who asked not to be identified. "We've used those equally. Three years ago, our main thrust was to influence and enhance IBM's check processing system, which we did through Guide. And now, we're into sharing information — passing codes back and forth, developing new products and learning what directions others are taking."

"The user community is always doing more than what the vendors can see," adds Phillip Thordarson, senior traffic engineer for the city of Seattle's engineering department and a member of the North American Data General Users Group (NADGUG). "The users group helps me stay abreast of what is going on, find good contacts and lets me resolve problems by bouncing ideas off others," he says.

It is not unusual to find enthusiastic reviews of users group experiences from both leaders and rank-and-file members. The commitment of time and energy alone to a users group bespeaks a member's point of view.

Yet, these members — whether from totally independent groups like Share or Common, an IBM small-systems users group, or vendor-supported groups like NADGUG or Digital

Rifkin is a senior editor for Computerworld.

Great moments in users groups history

LATE 1970s — About to discontinue its VM operating system, IBM is persuaded by the Share and Guide users groups that this decision is unwise and changes its mind. Today, VM is arguably IBM's most popular operating system.

1983 — Despite a wide and loyal following for the Decsystem-10 and 20 and the heated protests of its Digital Equipment Computer Users Society users group, DEC decides for business reasons to discontinue development of that product line. Ironically, current users group President Clair Goldsmith ordered two Decsystem-20s weeks before the announcement.

1983 — Relying on input from resolutions by the Common users group and its 4300 corporate members, IBM introduces the System/36 mid-range machine as a follow-up to the System/34.

1984 — Based on input from its Interact User Group, MSA, Inc. incorporated a Human Resources Training Subsystem into its Human Resources Package that allowed nontechnical people to use the package without enlisting the aid of a programmer.

1984 — Because of users group pressure, IBM formally releases the Professional Office System, a product that had previously been restricted to internal IBM use.

1985 — DG users, frustrated while installing software on weekends and at night, persuade their North American Data General Users Group to convince the company to install a 24-hour hot line.

1986 — Honeywell, despite the major effort by its Honeywell Large Systems User Association, dropped its longtime operating system Multics, leaving a small but loyal group of customers with no migration path.

1987 — Frustrated with Wang's internal administrative problems, the International Society of Wang Users will set up the LINCUS toll-free line to help customers with billing, maintenance and other administrative problems.

CHICAGO

User influence

FROM PREVIOUS PAGE

Equipment Computer Users Society (DECUS) — while tending to extol the virtues of users group participation, are unable to pinpoint specific instances of users group influence. A common refrain among members goes something like this: "We can't say for sure that the change was due to our recommendations, but we know the vendors listened."

It is impossible to gauge just how much vendors do listen, especially in recent years when outside market pressures have guided product development and direction more strongly than any other factor. But they do listen.

IBM said through a spokesman that "Share, Guide and Common have the objective of influencing the future design and capability of IBM products. They also provide many valuable suggestions to us to assist us in improving our current product line."

"IBM has made many improvements in our products as a result of our dialogue with the user groups," he said. "Their 'requirements' process is quite helpful to us in focusing our product development resources on specific actions we can take to improve customer satisfaction. It's simply good business judgment to listen to your customers and try to accommodate their suggestions."

Digital Equipment Corp. puts heavy emphasis on the 50,000-

member DECUS user group. The company provides the group with a 40-person staff and office space in its Marlboro, Mass., facility. In addition, a DEC employee sits on the DECUS board. That board member, Peter Jancoz, says he believes that the users group ensures good and useful two-way communication between users and DEC. DEC goes as far as providing preannounced product and strategy information to DECUS steering committees on a nondisclosure basis.

"It's important to let them understand what the environment might be like in 12 months if they are planning an agenda for a national symposium," Jancoz explains. "Personal integrity and trust is demanded, and we are blessed with exceptionally good people to work with at DECUS."

DEC's product engineers are working on a series of projects with DECUS members in the area of product development. "We need to understand where users think they are going," Jancoz says. He acknowledges, however, that DEC does not turn just to DECUS for ideas. "It's that the only input we need. But it is of great value in planning from the user perspective," Jancoz says.

Most vendors agree that users groups provide valuable input, but it is not the only input. Like Guide members, IBM in Share is contingent on IBM mainframe installation; in Share's case, the configuration

Continued on page 82

A sampling of users groups: Memberships for every interest

Why do users groups get started? Most form because a number of users of one vendor's products feel compelled to get together and talk about common problems. The following list provides a sampling of the largest such users groups.

Guide. Formed in December 1956 by representatives of 44 IBM 702 and 705 installations, Guide remains an organization dedicated to large-scale users of IBM data processing equipment.

The minimum hardware configuration required for Guide membership is the IBM 4300 processor or IBM 3630 series and 3080 series processors. The group focuses on IBM's MVS, VM and VSE operating systems.

Today, despite a flattening of attendance at its major meetings, Guide has 2,850 member organizations.

To attract membership, the users group offers symposia on a wide range of DP-related topics, including technical and managerial issues.

Guide, like most users groups, has a formal process for presenting ideas and suggestions to IBM. For an idea to become a so-called Guide "requirement," a member must bring that idea to the Guide project most closely tied to that technical area and convince the members that the suggestion is worthwhile to pursue.

That done, a vote is taken at the next level of the organization to determine whether it gets formally presented to IBM as a requirement. IBM has guaranteed that it will respond to any Guide requirement within two Guide meetings.

According to John Nack, Guide president, an idea that does not get the required number of votes can be lobbied for the next time around. In addition, IBM representatives attend virtually every project meeting at Guide and are likely to respond to suggestions whether they become formal requirements or not.

The users group is working hard to bring together its international forces and to forge closer ties with other users groups.

Share. Share was the first organized users group in the computer industry and held its first meeting in Santa Monica, Calif., in August 1955. Today, it boasts 2,300 corporate members and attracts close to 5,000 attendees to its semiannual meetings.

Like Guide, membership in Share is contingent on IBM mainframe installation; in Share's case, the configuration

must be the 3031 or higher or 4341 or higher, and the operating system must be MVS or VM.

According to Share President Mike Armstrong, the group started out primarily as a scientific/engineering organization and still retains that flavor. Conversely, Guide began as a commercial organization and continues in that mode today.

"Share is much more entrepreneurial and focuses on technology and the way things are done. Guide is more pragmatic and doesn't focus as much on the underlying technology," Armstrong says.

Although the two groups work jointly on certain projects, efforts to merge have failed. "Each group realizes that it does a pretty good job at what it's good at, but that they are different enough so that they wouldn't be particularly effective as one big organization," Armstrong says.

Corporate members very often belong to both Guide and Share, but the companies tend not to send the same people to both users groups meetings. A minimum of one meeting must be attended each year to retain membership in Share.

SHARE is more entrepreneurial and focuses on technology. Guide is more pragmatic and doesn't focus as much on the underlying technology.

MIKE ARMSTRONG
SHARE

Share surveys its members annually on the hot issues of the day. The 1986 poll of executive members showed that the No. 1 concern was security, followed by cooperative processing, office systems and end-user computing.

Common. Founded in 1960 as the users group for smaller IBM configurations than those required for membership in Share and Guide, Common now claims to be the world's largest users group with 4,300 corporate members.

The organization is broken down into three divisions: applications, systems and management. Common focuses on System/36 and 38, Series/1, 4300 and the IBM Personal Computer.

Common is credited with in-

fluencing IBM to follow up the System/34 with both the System/36 and 38. Similar to Guide, Common has a resolution process to present its ideas to IBM. IBM has agreed to accept, reject or consider each resolution.

According to Robert Sutherland, Common president, the group annually submits hundreds of resolutions, which IBM reviews and distributes internally. In addition, IBM representatives are on-hand at all Common projects at the semiannual meetings.

As IBM customers begin to focus more on departmental systems such as the System/36, the mainframe groups like Guide and Share have sought closer ties with Common.

International Society of Wang Users. ISWU is a nationwide organization with more than 2,200 individual members in numerous local chapters throughout the country. The national organization is supported by the local chapters, according to ISWU President Bill Sturgeon. The group convenes an annual meeting called Technocon each fall.

According to Sturgeon, Wang Laboratories, Inc. has a full-time director for users group support, who meets regularly with Chairmen. An Wang division, Wang Labs, provides software to users group members as well as library and magazine support.

The vendor works closely with the users group and has representatives at all meetings and special interest group gatherings. The company provides advance product information to ISWU on a nondisclosure basis.

Sturgeon points out that Wang has informed the users group of its current financial problems in advance of the public announcement. He says that users group members have not expressed nervousness about the company's problems. "We get an awful lot of support from Wang offices," Sturgeon says. "Wang representatives spend a lot of time at our meetings. We expect they'll survive."

North American Data General Users Group. NADGUG, unlike most large users groups, was started by the company itself 11 years ago. According to NADGUG President Calvin Durand, comptroller of the Tractor and Equipment Co. in Birmingham, Ala., the group flourished until 1980 when Data General Corp. users themselves made a concerted effort to push the organization.

The group now boasts more than 2,300 individual members and continues its formal ties with DG. DG provides office space and staff as well as computer equipment for NADGUG.

The users group has its own independent board and publishes a monthly magazine called *Focus*.

According to Durkin, there was a period of tension when the users took control of the organization, but that has eased. "Both sides gave in a little," Durkin explains. "We get good support from DG. They listen to us."

NADGUG has a semiformal process for presenting suggestions to DG. Each spring, the group surveys its regional and special interest groups to assess their concerns. The advisory board takes those issues and boils them down to the top half-dozen items. The board then meets to discuss those items with senior management at DG.

Durkin points out that NADGUG has made a concerted effort to grow through membership drives and the implementation of new data base software for cleaning up membership lists. "We've grown 100% in the past 18 months," he says.

Digital Equipment Computer Users Society. DECUS was founded in 1961 and now boasts nearly 50,000 individual members worldwide.

Unlike groups like Guide, which

WE ARE seeing the user base changing. A wider scope of people are coming to the meetings wanting our products."

CLAIR GOLDSMITH
DECUS

charges \$400 per corporate member, DECUS membership is free to any individual, regardless of what Digital Equipment Corp. equipment is installed.

According to DECUS President Clair Goldsmith, the group grew out of ties with DEC's engineering department, and that bond is still strong today. "A lot of DECUS members are on a first-name basis with DEC engineers," Goldsmith says.

In fact, in the past 18 months, those ties have been more formalized, and DECUS members are now working closely with DEC engineers on certain product development efforts.

Like NADGUG, DECUS has a formal working relationship with DEC. The company provides space and staff, and a DEC employee has voting rights on the DECUS board.

"We want to promote an exchange of information, from user to user, user to DEC and DEC to user, about DEC and its products," Goldsmith declares.

Goldsmith points out that DECUS attracts 6,000 attendees to its semiannual meetings but that there is an entire base of users who attend only the local users group meetings.

DEC, Goldsmith says, uses DECUS in a number of ways for input into product development and strategy planning.

Taking a cue from the company, DECUS runs its own "woods meetings" — spawned from DEC's 1960s meetings in DEC President Ken Olsen's cabin in the New Hampshire woods — to discuss fu-

ture products.

DEC's recent success in the marketplace has caused no noticeable changes in its relationship with DECUS. Goldsmith insists.

"I can't tell any difference in the way we are treated. We are still getting the people we want to come to our symposia," he says. "We are seeing the user base changing. A wider scope of people are coming to the meetings wanting our products."

Honeywell Large Systems Users Association. HLSUA is facing an uncertain future as its raison d'être, Honeywell Information Systems, is selling out to two foreign computer giants, Paris-based Compagnie des Machines Bull and Japan's

NEC Corp.

Stan Lauck, HLSUA president, says he believes that the move is a positive one for the users group.

"Honeywell, Inc. wasn't paying enough attention to the Information Systems division to make it a viable competitor," Lauck states.

"Now, the main focus will be on building hardware and software and meeting customer needs. We don't believe it will negatively affect the product line."

Nonetheless, the heyday of Honeywell seems to be over, and that is reflected in its users group. HLSUA currently has 500 corporate members, down from 600 in the late 1970s. The annual meeting draws anywhere from 800 to 1,600 attendees.

While Honeywell has supplied some services to the group, it is essentially independent of the company.

Lauck recalls that the HLSUA had strong influence with Honeywell in the late 1970s when it created a task force on data communications needs and submitted its findings to Honeywell.

"We believe we had great influence on the data communications product they offered," Lauck says.

More recently, the group did a survey to study what application software Honeywell users wanted but could not get. The results showed a sore lack of financial, business and engineering packages, needs that the company has begun to address.

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Boston Computer Society, one decade later

After emerging from the school library, Rotenberg's group captures the imagination of PC users

BY MICHAEL SULLIVAN-TRAINER
CH STAFF

In 1977, back when personal computers were little more than toys for teenagers, an enterprising 13-year-old decided to form a club for Altair enthusiasts.

In 1987, Jonathan Rotenberg is celebrating the first decade of his club, the Boston Computer Society (BCS), which has grown into the largest and most powerful personal computer users group in the world.

With subgroups dedicated to every brand of personal computer, the society's 23,000 members wield more than \$30 million worth of buying power for personal computers and related products. This kind of influence causes vendors to sit up and take notice.

For example, when IBM finally introduces its next personal computer, BCS members will likely be among the first potential users to see it, according to Gene Barlow, IBM's manager of PC users group support.

"We consider them near the top of the list, if not at the top, and we would certainly treat them appropriately. We have demonstrated some of our new systems before the society in the past, and we consider them a key player for anything we do in the future," Barlow says.

Other vendors, such as Apple Comput-

consumers and businessmen among its members. This diversity is another attraction for the vendors.

Debuts happen here

"Most of the significant personal computer products introduced in the last five years have had their first public showing here," Rotenberg says.

Among these have been Commodore Computer Corp.'s Amiga and Lotus Development Corp.'s Human Access Language. In most cases, these introductions

have benefited the vendors by helping them spread the word about new products. But there have also been "some famous mess-ups," Rotenberg says.

"Our meetings are covered by the business and trade press and industry analysts," he explains. "So it's very important that a company's presentation be successful. But when Coleco Corp. introduced its Adam home computer, the word processing program wasn't finished, and the product just didn't work properly. After the meeting, a scathing article ap-

peared in *The Wall Street Journal*, criticizing it."

Product introductions at the general meetings often rival trade show appearances by major vendors. For example, Apple, with Steve Jobs as the celebrity master of ceremonies, spent more than \$60,000 on the multimedia presentation of the Macintosh in 1984.

However, unlike trade shows, the BCS meetings are governed by rules requesting vendors to focus on the attributes of a new product rather than on promoting the company. Company logos are not allowed to be posted, and no actual selling is permitted.

Half of the typical BCS meeting is a question-and-answer session directed by the members. Because anyone in atten-

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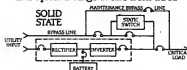
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I LOOK at the society as a place for the curious to come and learn about personal computers. You don't have to have six engineering degrees to fit in."

DEL YOCAM
APPLE COMPUTER, INC.

er, Inc., occasionally call BCS President Rotenberg to discuss the features a new product might have. In fact, the first public presentations of Apple's Macintosh, Lisa and Apple IIe computers were made at BCS meetings.

'Bellwether of market response'

"Users group members generally tend to be very vocal because they have a passion for the products and the industry. I see the BCS as the bellwether of the general market response to our products," says Del Yocam, Apple's chief operating officer and executive vice-president.

As a member of the BCS, Yocam attends annual meetings to present Apple products and uses the society's extensive information services to learn about new software products.

"I applaud the BCS for its independence from any one particular manufacturer. I look at the society as a place for the curious to come and learn about personal computers. You don't have to have six degrees in engineering to fit in," Yocam says.

In addition to the wide range of PCs used by its membership, the society's strength also lies in its policy of opening its doors to anyone interested in learning about computers.

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Stanford's Edward Feigenbaum (l) and author George Gilder at a BCS meeting.

dance can direct questions to the vendor from the floor, the session more closely resembles a town meeting than a product introduction.

"Often when a product is shown to BCS members, it has not yet been released, and the vendors are making the last changes to it. The manufacturer tends to listen very carefully to the feedback he receives," Rotenberg says.

Exercise influence

Rotenberg also says that the BCS has played a role in persuading vendors to remove copy protection from software. "That's a message that was pretty clearly communicated from our members to the manufacturers," he says.

Rotenberg attributes the BCS's influ-

ence to the combined buying power of its members and the fact that it fills a gap in the PC market by providing information and services to users. "There's more economic clout within the membership of the BCS in terms of personal computer purchases than any other affinity group in the world," Rotenberg says.

"There's also nothing else like the BCS as a forum for getting the industry together with consumers," he adds. "Most of the other users groups tend to be focused on specific technical problems and not on major new technology and products. In our case, the special interest groups within the society are focused on specific technical or educational needs. This allows the general meeting to deal with broader issues and new product developments."

The BCS hosts more than 1,000 meetings annually in the Northeast, each dealing with a different subject. Meetings range from detailed special interest group sessions to general meetings attended by more than 500 members. More than 1,000 are expected to attend the 10th anniversary celebrations this year.

Humble beginnings

From its humble beginnings in a school library, the society has risen to a suite of offices in Boston's Government Center and has chapters in 50 states and 40 foreign countries. The BCS is operated by nine paid staff members and 500 volunteers.

Rotenberg still stands firmly behind a

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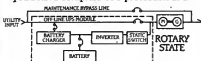
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principle developed early in the society's history: "We don't pay for anything." Everything in the BCS offices has been donated to the society, according to Rotenberg. Donations account for more than \$500,000 of the society's equipment and facilities.

The BCS annual operating budget totals about \$1 million, and funding comes from donations, member dues — which are \$35 per year for regular members and \$28 for associate members — and advertising in the organization's publications.

To celebrate its birthday, the society plans to mark the event at two general meetings and at a party in May.

The first meeting, held Jan. 28, featured a film on "The Age of Intelligent Machines," based on an upcoming exhibition at the Boston Museum of Science. A panel discussion among leaders in the artificial intelligence field was also featured. Panelists included Ray Kurzweil, chairman of Kurzweil Applied Intelligence, Inc., Edward Feigenbaum, chairman of computer science at Stanford University, and George Gilder, author of the book, *The Spirit of Enterprise*.

After presenting their views, the panelists responded to BCS members' questions, which ranged from the impact of AI on the arms race to how expert systems will be useful for home personal computer users.

User influence

CONTINUED FROM PAGE 78

buying products, and vendors want desperately to keep their installed base happy. Users groups not tied to one specific vendor, like the Boston Computer Society, exert influence due to their sheer size and the scope of their interest (see story page 80).

Merv Adrian, who chairs a special interest group for the New York PC Users Group, points out that the personal computer users groups are very different from mainframe groups. "The people who attend are generally there for their own personal interest," he points out. "And you tend to get a lot of senior DP people.

"In my micro-to-mainframe special interest group," he continues, "we attract some serious vendor reps and product managers who are glad to have a forum to get their message out. It's in our interest to serve their interest." Potential buyers all gathered in a single place tend to get vendors not only listening but salivating.

Never was that more clear than in the 1950s, when groups like Share and Guide formed. "If you go back to 1955 when we were organized, Share had enormous influence with IBM," Share's Armstrong says. "In fact, Share and Guide worked very closely with hardware and software designers for a long period of time. We were really the principal source of input for much of the software those machines used at the time. In reading the notes and

working papers of Share meeting number one, it's phenomenal to see the level of detail they were getting into to define the IBM 704. That couldn't happen today," Armstrong says.

"Share did the work back then," adds Philip Dorn, former Share president and a New York-based consultant. "IBM didn't know how to program the machines. The 704 was coming down the road, and no one knew how to compile for it. The relationship was very close. I knew who was developing the product, and I knew who to call. They're not that close anymore."

Armstrong says that while Share and Guide still have influence, the nature of that influence changed dramatically after the IBM 360 was announced in the 1960s.

"We had much less direct contribution

in the building of products," he explains. "The amount of influence we have in the definition of products continues to be very strong. But in terms of recommendations as to how to build products, that's gone down markedly."

However, the level of specific influence, as in the VM case, has become much more muddled and difficult to isolate. "IBM gets input on user demands from a large number of sources, and users groups are just one of them," Armstrong admits. "It's very difficult to tell how much we contributed, how much came from Guide and how much came from individual customers. I don't know."

John Nack, president of Guide, points out that recently IBM has begun to note in its product announcement letters when a product release satisfies certain Guide requirements. "Our influence seems to



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OUR INFLUENCE seems to have increased. At least, it gives us some clear indication of our influence, which is something they seemed unwilling to acknowledge before."

JOHN NACK
GUIDE

have increased," Nack says. "At least, it gives us some clear indication of our influence, which is something they seemed unwilling to acknowledge before."

IBM, in fact, recently reorganized internally so that its representatives to Guide, Share and Common now report to IBM's manager of customer relations rather than to the manager of users group relations. How this will affect the users groups' influence is still unknown. According to an IBM spokesman, "We do not expect this change to significantly change our relationships with our users groups."

What is known is that users groups tied to large vendors are experiencing a change. Large, vendor-specific users groups have seen a decline in membership growth and meeting attendance in recent years. Armstrong reports that fewer IBM staff members are attending Share meetings than in the past because of IBM's industry troubles and budget constraints.

Times have changed since the early days of computing when the industry was technology driven and vendors formed partnerships with users to develop products. Forced by market-driven pressures, vendors in the late '70s and early '80s put less stock in users group demands. Responses from the vendors were due to the influence of all customers whether they belonged to users groups or not, and large customers tended to do better dealing one-on-one with the vendor than through



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the users group. But like crew cuts and folk music, users groups may be making a comeback.

Consultant Linda O'Keefe, director of office systems industry service for Dataquest, Inc., says she believes that the power of large-vendor user groups has dramatically increased in the past couple of years. Users groups, she says, are exerting more pressure today and are using buying power to back their demands. The change, she says, is due to the influence of cross-vendor user groups like the MAP/TOP User Group.

"There used to be a real symbiotic relationship between the vendor and people in the users group," O'Keefe explains. "The inside guy was making the vendor successful, and the vendor was making the inside guy successful — very much a one-to-one symbiosis."

"But once you get the acknowledgment within a company that it is a multi-vendor environment," she continues, "that symbiosis doesn't work nearly as well. You now have broader concerns. The MAP/TOP User Group showed people that. Users started saying, 'This is broader than a DEC issue or an IBM issue, and I need to start waving my flag within the proprietary users group for things like standards. It's no accident that all major computer system vendors have made major commitments to standards compliance. It's not because they wanted to do it. The users groups pushed them,'" she says.

The MAP/TOP crusaders

Not so much a users group as a crusade, the MAP/TOP User Group has, as O'Keefe points out, gone a long way toward changing the image of users groups in general. Conceived by Mike Kaminski, manager of General Motors Corp.'s MAP program, the MAP/TOP User Group took a calculated but unique risk.

"When you form a users group, there is usually something to use," Kaminski says. "There was certainly nothing to use when we put this group together in 1984. My own people asked, 'Why are you calling this a users group?' And I said, 'If we don't call it that, people will think we are never going to use this stuff.'"

Kaminski says he believed strongly that to get the various vendors' attention, there was power in numbers. With the financial backing of GM, Kaminski lobbied to get other major user companies into the fold.

The idea was to spur the International Standards Organization to move its model for factory automation from the drawing board into reality.

"We felt we had three options at the time," Kaminski recalls. "We could have gone with a single vendor, but there was no single vendor to provide all the equipment. The second option was to get the vendors to come up with a GM proprietary solution, which would have been expensive, redundant and hard to maintain, and the third was to create MAP as a standard."

In the past 2½ years, Kaminski and his staff at GM have poured tremendous amounts of time and effort into attracting users and vendors into the group. They initiated independent groups in Europe, Japan and Australia. From one very large member, GM, the international group now numbers close to 1,400 member companies.

Chuck Gardner, coordinator of system standards at Eastman Kodak Co. and

IT'S NO accident that all major computer system vendors have made major commitments to standards compliance. It's not because they wanted to do it. The users groups pushed them."

LINDA O'KEEFE
DATAQUEST, INC.

chairman of the MAP/TOP User Group Steering Committee, seeks to dispel the criticism that GM — in the case of MAP — and Boeing Computer Services Co. — in the case of TOP — were acting out of selfish interests.

"I hope it is to their benefit," Gardner states. "We feel at Kodak that what's be-

ing done is to our benefit as well. It's an open process, and we have members on all the MAP and TOP committees. I can think of a number of needs for Kodak that weren't being addressed, and the process responded. One of the prime justifications for the time Kodak puts into this is the knowledge we get back in return. It's true

that GM has some of its own interests, but if those are met, then others can be met as well," Gardner says.

As acceptance of TOP, a set of office standards, gains momentum, it is bringing more traditional DP types into the movement. To this end, the MAP/TOP User Group has formed ties with the recently formed Corporation for Open Systems.

"They are helping to spearhead and focus some of the traditional DP and communications issues and people into this whole thing," Gardner says.

The quest for knowledge, parties
Influence, however, is not the sole reason for joining a users group. These groups offer their members a chance to interact

Continued on page 88

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Internal users groups: That was then, this is now

BY DEBORAH COOPER

Corporate users groups of old faced an important mission: to get novice computer users over that first technology hurdle. In some corporate settings, internal users groups based solely on the personal computer became popular. These prototypes were generally informal and loosely organized, according to Naomi Karten, a Randolph, Mass.-based consultant specializing in end-user computing. But few organized training programs for PCs existed five years ago, so these internal groups served a purpose.

However, now that users and their equipment have become more friendly and many companies have established comprehensive training centers, most of those original groups have vanished. In their place are application-specific groups run either by or for MIS departments.

Internal users groups that exist today bear little resemblance to their predecessors. Instead of being held after hours and presided over by passionate hackers, these organizations have formal agendas, guest speakers and vendor presentations. Sanctioned by upper management, they meet during work time to discuss issues and trends, not suits and bolts. And their opinions are actively solicited by the MIS departments and information centers that map out DP strategy and support end users. In fact, in companies where the idea is still viable, internal users groups are becoming more a part of the strategy of self-sufficiency espoused by information centers.

"The information center can't do everything for everybody," Karten says. "These users groups are the best way to get users more involved."

At Dana Corp., an automotive and truck parts manufacturer in Toledo, Ohio, the information center is organizing a corporatewide internal users group.

According to Matt McCarty, a PC specialist within the Computer Services Division, the group will act as a focal point for the company's hundreds of PCs—a place where users can share information and provide support for colleagues.

Dana's Fluid Products Division already has an internal PC users group. This small and informal group began several years ago, McCarty says, when its members discovered a common bond—the PC—and sought each other's advice and knowledge. "They've been really effective in sharing information," McCarty claims. "I'm in charge of a local-area network installation for their division, and their knowledge and familiarity with the computers has made my job a lot easier."

When they work

Karten agrees that users are eager to share their triumphs and knowledge and says that this alone can ensure the success of an internal users group.

"Often, the information center will initiate the group, but the users will quickly take over," she says. "They want to do it for themselves." In fact, in larger installations with bigger users groups, subgroups—like the special interest groups in major

external users groups—will spin off.

In addition, Karten says, the more successful internal groups will have little corporate involvement, and the informality of brown-bag lunch meetings, for example, seems to help foster enthusiasm.

Structure, she adds, is necessary in the form of agendas, presentations, newsletters and product demonstrations, but in environments where MIS exerts tight control, the relationship with the end user can become adversarial. "And people will

share information anyway around the coffee machine or in the lunchroom," Karten adds. Company size has a lot to do with how well users' communication channels are organized and how well internal users groups will fare.

At Dana, which is made up of several autonomous divisions, one of the major obstacles to the formation of a companywide users group is crossing those divisional lines. "We can't just send an edit down from the information center," McCarty says. "It's really like starting an external group."

When they don't work

With more than 1,200 PC users in New York Life Insurance Co.'s home office, regular corporatewide users groups are

out of the question.

One answer to this is departmental meetings.

"These meetings are smaller. Everyone has more in common, and they can relate better to each other," says Patricia Fariza, project engineer in the End-User Computing Division.

On the other hand, smaller companies such as Dow Jones & Co. have not seen the need for any version of an internal users group.

"We don't have any formal groups because we are small enough to share and disseminate information informally," says Tom Kull, director of computer services of the Princeton, N.J., company, which employs 4,000 nationwide.

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mal hardware and software training by the computer services staff, but subsequent questions or problems are handled as needed within the news department itself, Kull explains.

Large or small, some companies simply cannot make a users group fly. Indeed, companies with access to powerful outside users groups often find it difficult even to get internal groups started. For many companies in metropolitan Boston, for example, the Boston Computer Society has nullified the need for internal users groups.

"We tried to start one in our Trust Department," says Danielle Barr, vice-president of corporate systems for the Bank of New England Corp. "But with good access to the Boston Computer Society and

with no one wanting to stay after work, it failed."

Ron Brazzinski, vice-president of information systems at Quaker Oats Co. in Chicago, says the establishment of its information center made PC users groups obsolete. "The information center has replaced users groups and has become the focal point of activity for PC users," he says. The company's information center activities include a quarterly newsletter, a full-time trainer and a well-staffed hot line.

Alternatives

More companies are establishing information centers to oversee end-user activities. But others have chosen different methods of exchanging information. At

some organizations, two or three people are identified as computer gurus.

"These are technology enthusiasts who are more than happy to share their knowledge with colleagues," says Walter Ulrich, a partner with Coopers & Lybrand in Houston, who specializes in strategic business services. "When the basic technology is understood, these user-oriented activities displace the need for groups," he explains.

At Bobot Group, Inc. in Roseland, N.J., a Swiss manufacturer and distributor of printing machines and spare parts with approximately 300 U.S. employees, these savants are called "chief users." They are like systems analysts," says Gary Gittelson, electronic data processing manager.

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"We have one in each department, chosen for their knowledge of the department as well as for their flexibility and willingness to learn new ways of doing things," he says.

This cooperative spirit between DP and MIS departments and micro users is a recent phenomenon, many DP managers say.

Whereas mini-computer and mainframe user needs have always been taken seriously, the needs of microcomputer users have been regarded with suspicion.

"Once the 'we vs. they' atmosphere and anti-personal-computer paranoia faded, communication between the MIS departments and end users markedly improved. They began to band together," Quaker Oats' Brazzinski observes.

Ed Landry, manager of the Business Consulting Group for Boston-based John Hancock Mutual Life Insurance Co.'s Financial Services Division, says he sees a change in the end users themselves. "Hackers are still around, but now they are interested in how the computer's power can be used for business applications."

Hancock continues to run an informal monthly PC users group, Landry notes, but attendance fluctuates by meeting topic.

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Corp.'s 1-2-3 software, anything dealing with it draws a big crowd. A demonstration of Lotus's Human Access Language brought in more than 100 people. "Other times, Landry says, fewer than 25 people attend.

Some companies such as Smith Barney, Harris Upham & Co. in New York do not encourage internal users groups at all. "We found them to be takers rather than givers. They take up too much time without contributing enough. If people want to learn, there are many outside professional seminars and meetings they can attend," says the brokerage's Technology Vice-President, Len Carlson.

E. F. Hutton & Co.'s Bernard Weinstein, first vice-president of information systems and telecommunications for the New York-based firm, admits his company is not looking for "coffee-klatch-type" groups either. "But the users now are serious business professionals and no longer hobbyists, so their input is very valuable to us."

E. F. Hutton recently ran a user focus group called "EDP and the Account Executive." The company wanted input on different workstation specifications before making a final purchase decision.

Although many in the group could not be considered techies, they had a good understanding of system function.

"We were interested in first-hand appraisals from this group," Weinstein says. "We know what's under the hood, but we wanted people who could test drive."

The focus group paved a road to these people.



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*"What we used to call competition,
we're now calling prey."*

User influence

FROM PAGE 83

without the "all-things-to-all-people" atmosphere of industry-wide conventions like the National Computer Conference or Comdex. Members know that at the annual or semiannual users group gatherings they will find the systems or products they are using along with professionals who are using them.

Session programs are designed along specific, coordinated lines to enhance the relevance and value of presentations. Special interest groups, formed around virtually any technical or business need, attract users seeking answers to unique or specific questions. And many meetings are actually shopping bazaars where members can find thousands of dollars worth of free, public domain software.

Many users group members find the annual national or international meetings to be excuses simply for social drinking and three-day excursions to San Francisco. The regional chap-

terest group on office automation.

"The support channels at DEC varied. Some were good, some bad. You wanted to tell the company. They, you only wrote the thing, I have to live with it. And through DECUS, I have access to people with my same frustrations."

At the International Society of Wang Users (ISWU), the na-

tional meetings tend to be a feeding ground for all types of Wang Laboratories, Inc. product users. According to ISWU President Bill Sturgeon, a senior computer systems specialist for Solar Turbines, Inc. in San Diego, "Some people just want to show how smart they are, and others are strictly there to learn. Some are just there for the social reasons. But the benefit is the dialogue

you have with others. It's a formal way to get people together by systems, by locality, by business."

Participating in users groups, despite their reputation for parties and good times, is not taken lightly by individuals or corporations. Some groups such as Share or Guide accept only corporate memberships. For Guide, those memberships cost \$400

each, and companies must also pay the way for each employee it sends to the meetings. Guide requires members to attend a minimum of one meeting per year.

Beyond cost is the time commitment. Even the least active users group member must devote a significant amount of free time to the activity to get any benefit.

And those on steering or advi-

W. Ben Kuersteiner
Executive Vice-President
Texas Commerce Bank

The Problem:

We faced a five year backlog plus an estimated three year invisible backlog. Our solution came from a source we didn't expect.

Pressures to resolve the backlog problem (within budget) required special attention because of our unique cost/performance history and aggressive corporate profitability goals.

In terms of profitability, Texas Commerce Bancshares (TCBK) consistently ranked first or second in the nation, until the oil problems of 1985. During the preceding 18 years, TCBK continuously increased earnings, quarter over quarter. In 1985, expenditures of the Data Services Group totaled less than its budgets for either 1984 or 1983. Since 1963, on an aggregate basis, Data Services has been under budget by \$5 million, on an approximate \$32 million base. These records posed a formidable mandate to find or develop a highly cost-effective solution for the backlog problem.

Texas Commerce Bancshares, a holding company, owns 70 member banks in Texas. These comprise the Texas Commerce network. Statewide, it ranks fourth largest in assets. Nationally it ranks twenty-fifth.

Headquarters of the Data Services Group are located in our Houston data center. We also operate major regional data centers in Austin and Dallas, plus 12 remote centers throughout the state.

We streamlined development procedures and exercised all appropriate efficiency measures. But during the same time, user sophistication in terms of the number and complexity of requirements offset our productivity gains. At

this point, we recognized two alternatives: Radically increase our programming staff (which would not have completely solved the problem), or acquire a productivity tool.

Product Evaluation:

We created a product study team which outlined and prioritized our selection criteria. During this process we discovered Transform Logic Corporation—a relatively young company that developed and markets Transform—which was claimed to automatically create and maintain complete, efficient, structured COBOL application systems directly from preliminary, non-procedural design input, without use of a special high level language.

Our original product selection criteria included the following major items:

- Online design capabilities, using graphics.
- Prototyping
- COBOL generation in batch, IMS and/or CICS
- Screen painter
- Support all major access methods
- Generate code which runs in a stand alone environment
- Generate code that can be modified and recompiled, without having to regenerate the entire system.
- Self documenting.
- Generated systems which run as efficiently as hand coded systems
- Automatic Generation of Help screens
- Generated code should be structured
- Generated code paragraph names and data names should be meaningful and easily maintained by a programmer if required.

Transform Logic invited us to participate in what it calls a "Prove-it" demonstration. The vendor asked us to bring an application which had taken approximately three months to develop by conventional programming methods. They warranted that, using Transform, the application would be generated in two days, precisely to our specifications.

We had recently completed such an application, our Business Development system. It tracks certain types of customers, their locations throughout our network, types of services we provide, key contacts, and related information. We took this system and the programmer

who wrote it to Transform Logic's headquarters in Scottsdale, Arizona. Within a day and a half, we had a complete generated COBOL system. It consisted of 20,000 lines of generated code and five lines of hand written code. It had three different databases and three different transactions. One transaction used one database. Another used two databases, and the third transaction used all three databases. Transform automatically generated Help screens and field editing.

Back in Houston, the author of the application analyzed the generated code. Of course it had different data names. But in many instances, he found the generated code almost identical to what he had written. In some instances he admitted that it was better than what he had written. He further remarked that it had more than three months, he too could have included Help screens. This analysis convinced us that, using Transform, we could meet our rather ambitious goals. But at this point, our attention shifted to other issues.

First, Transform used a new technology. That fact maximized our dependence on the vendor. We wondered how Transform Logic would stand behind its product. Would our people be able to pick up the knowledge needed to use this product? How responsive would Transform Logic be to our questions? What impact should we expect Transform to have on our people, our departmental structure, our daily routine, and our basic departmental approach to doing business? What fundamental do's and don'ts should the transition to Transform?

We introduced Transform by presenting it to a steering committee, a priority setting group, which meets each month to evaluate new products and track progress on large projects. Our internal documentation included capabilities of Transform, its costs, its benefits and its pay-back. The steering committee approved the proposal. Then, because of the dollar expenditure, it went to the Strategy Committee, which also approved it. That gave me authorization to enter into a contract with Transform Logic. During the contract meeting we defined scheduling, training, installation timing and procedures, and other details.

Use & Features:

Transform Logic installed the product over a weekend, then returned for a

THE BENEFIT is the dialogue with others. It's a formal way to get people together by systems, by locality, by business."

BILL STURGEON
ISWU

ters or local spin-offs to the large users group often accomplish more for members than the parent organization.

"The national conference is basically a social gathering," says New York PC Users Group's Adrian, who is a project manager at Shearson Lehman Brothers, Inc. in New York and also a member of the Information Builders, Inc. software users group. "The real hands-on people go to the regional meetings."

Whether at national or local meetings, the value of users group gatherings tends to be found not only in the symposia or special interest groups but also in the social affairs.

Guide goes as far as organizing Social Communication and Informal Discussion Sessions, which essentially tell attendees it is time to grab a beer and find a friend with some useful information.

"I find it's the best way to meet people and learn about their problems," the Arizona Guide member says.

"DECUS started as an organization of frustrated people," adds Mitch Brown, a senior business systems analyst at Genrad, Inc. in Concord, Mass., and a member of a DECUS special in-

A Superior Way for Organizations to Solve Key Data Processing Problems.

sory committees, as well as the regularly elected executives, must put in weeks of their own time each year. Genrad's Brown estimates that he puts in two business and two personal days per year for just the satellite group. "That doesn't for the time I have to put in for preparation," he adds.

And the rewards are tempered by the obstacles that every

users group seems to encounter. Among the most troublesome is attracting new members.

Large users groups like Guide have seen membership level off. Three years ago, the national Guide meeting attracted more than 5,000 attendees, but that number has dropped since then to less than 4,000.

Guide's NAD admitted that the organization was not very

good at profiling attending members, but he says he believes that although the numbers are down, a higher corporate-level member is beginning to attend. "I believe we are attracting more of the managers of DP sites rather than just staff people. It's very difficult to measure," he says.

Nack acknowledges that user sites have grown and that Guide must grow if it is going to contin-

ue to represent a significant percentage of corporate users.

But ironically, it is the new members themselves who pose a big problem at meetings. DECUS, for example, attracts 5,000 members to its annual meetings each year, but of that number, more than 40% are first-time attendees.

And with new faces at each seminar or symposium, discus-

sions that have been ongoing for several months or even years must grind to a halt to fill in historical details.

Another roadblock to the open sharing of information is the recent revelation that has taken hold of the MIS world: the use of information as a strategic weapon. A decade ago, users group members thought nothing of sharing any and all details of their operations. Today, that liberal distribution of the family secrets is more dicey.

Members must keep a closer check on what they discuss. Often, that can cause discussions to come to an unsatisfying end.

"In the users group I participated in, the level at which the information was traded was definitely not strategic," Dataquest's O'Keefe says. "I tended to be things like, 'When I'm in this environment, I always get a system error' or 'I'm having trouble analyzing my capacity needs. How do you do it?'"

According to O'Keefe, the attendees tend to be technical support staff rather than MIS managers — people who are not

"I DON'T have time to waste on meetings, but I can justify my participation in the users group pretty easily."

PHILIP THORADSON
NADGUG

pry to strategic direction. "They tend to be people with very specific technical concerns," O'Keefe says.

Despite this, the open environment is changing. The Guide member from the banking industry says, "It's becoming a problem. Sharing information is not as free as it used to be."

Genrad's Brown reports that he feels free to share ideas and methodologies but stops short of getting into strategic areas. "Everybody has to deal with their own company," he acknowledges. "In fact, a lot of us are in DECUS for the greater glory of our own company, so you have to tread a fine line. It certainly is an issue."

Despite the obstacles, users group members seem to have little trouble finding issues and concerns to discuss. As NADGUG's Thoradson points out, "I don't have time to waste on meetings, but I can justify my participation in the users group pretty easily. I list what I want to get out of it before I go, and I'm usually fulfilled."

"I know I'm ahead of the game," he says. "We have a multivendor environment now, and you can save a lot of time and money by learning from others about efficiency and different approaches to a problem."

can reduce your backlog

two week training session. Meanwhile, positive acceptance of Transform spread by word of mouth from those who had knowledge of it. We presented it to the staff as an upgrade for them, from analysts/programmers to analysts/designers, and much closer interaction with users. IMS, that is the product's most obvious impact. This success-oriented scenario defused any "cultural shock" or perceived "threat."

Because Transform automates programming, it forces emphasis on design. Taking the team approach, we benefit from very high quality design. To accomplish this we established a core group — those familiar with IMS and its internal details and those also well versed in Transform and its internals. Our core group trains about 10 staffers per month. When not involved with training, members of the core group serve as consultants to Transform design teams. They also assume some database administration and technical support functions to avoid potential bottlenecks in these areas.

Our use of Transform included two very aggressive pilot projects: an online inquiry system for our Trust department, and a data entry front end for our customer information system. The first system draws information from 11 databases, and consists of approximately 45 online and batch programs. The customer information system allows one entry point for setting up new accounts and for maintaining existing accounts for our Demand Deposit, Savings, Certificates of Deposit, Installment Loans, and Commercial Loans systems. This consists of 15 online programs and 18 batch programs. Each of these two pilot projects included competitive advantages and user friendly extras such as the automatic transaction reversal feature, special notes added to the ledger screens, and other refinements.

With this experience behind us, we have identified aspects of the product which we like.

- Instant prototyping capabilities
- Code generation in COBOL is very good. It meets all of our original expectations
- The product supports all major access methods
- IMS code generation is excellent
- Generated code can be modified

and recomplied in a stand-alone environment.

- The generated system is very well structured and easy to follow
- The generated system automatically provides Help screens
- The generated procedure and data names are well structured and meaningful
- The generated system runs as efficiently as if hand coded
- The generated system typically has fewer features than a hand coded system
- The product has its own active data dictionary
- Support from Transform Logic has been excellent. Problems/questions are usually solved/answered in a matter of hours

Results:

Our product evaluation continues by carefully measuring our performance with Transform. As we progressed through the first few system developments, we experienced productivity gains from 2.5:1 to 10:1. We estimated 3,800 hours to complete the customer information system by hand. Actual hours using Transform totaled 1,850 for an approximate savings of \$100,000 of staff time plus a quicker installation. However, we expect improvement in this area as we become more familiar with Transform. During the next 12 months, we plan to complete four major projects using Transform. A cash disbursement subsystem for Trust, data entry and validation front end system for Trust, commitment accounting subsystem for Commercial Loans, and adversely graded and charged-off loans subsystem for Commercial Loans. We have estimated our savings through the use of Transform on these projects will exceed \$500,000.

Helpful Hints:

If you contemplate using this product, I can reaffirm some aspects and recom-

mend others. First, this product performs substantially as advertised. No big surprises. Second, vendor support (on site and telephonic) is excellent. Third, plan ahead. Invite a core group to learn everything it can about the product. The group should be comprised of experienced people who know IMS or CICS database design principles, and who know your standards for developing systems and moving the systems into production. Plan to let them teach others. Programmers with one or two years of experience have no trouble learning the concepts of developing systems with Transform. Plan on making adjustments in your database administration and technical support areas. We now have the capability of generating systems so rapidly that sometimes the user can't verify that they are correct in a timely manner. We can create a backlog on the user's side. So a balance of organizational functions becomes important.

Procedurally, I recommend small non-critical development efforts for your first two or three projects. These should access no more than three databases, and should include no more than 10 programs. This practice will allow time to develop internal procedures. It builds morale and confidence. And it reduces the learning curve. Set a limit of five to seven people who work on the initial projects, and select these people with the intent that they will comprise the core group that I mentioned.

These measures should place your organization in an optimum position to take advantage of Transform's capabilities, in the least amount of time.

One Final Point:

One final point. To date, our use of Transform has focused on development of application systems. However, system maintenance typically consumes a larger budget than development. Since Transform also automates ongoing maintenance, we have no doubt about achieving our goals.

Product Data:

To learn more about this expert system approach to automation in IMS and CICS environments, contact David Orcher, Product Information Dept., Transform Logic Corporation, 8502 E. Via de Ventura, Scottsdale, AZ 85258 or call (802) 948-2600



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MANAGEMENT

TAKING CHARGE

Michael B. Packer

Talk business with brass

Information services executives recognize the need to build better relationships with corporate and line managers. Unfortunately, much of the advice they receive on the subject is impossibly vague — "Think about how technology can contribute to the business's competitive success" — unbearably narrow — "Send your chief executive officer to a seminar on technology trends" — or mildly insulting — "Wear all-wood suits."

Instead, when information systems executives talk with their CEO or line managers, they need to concentrate on three basic tasks.

First, contribute to discussions about what's at stake in your firm. Most information systems executives want to participate with general and line managers in key business decisions; the question is how to get involved to the party. Spouting techno-talk about new technology or price/performance trends and religious statements about the importance of information technology in today's world won't do it.

Instead, try what the chief of information systems at a leading bank did: He built a model for himself of each business and how his costs would change with business volume and product mix. His annual plan, based on the research, so impressed the corporate management group that they asked him to join them for all their future meetings.

The lesson: In order to be invited to participate in key decisions, you must contribute to the facts underlying them. For example, admittedly, doing this isn't easy. But a few key exercises can help.

Try building a picture of the chain of business activities in your firm and its relationship to the outside world. For each activity, identify the cost, the support now provided by information technology and the cost dynamics of that as demand changes, the impact on customers if the activity is performed poorly and the keys to success. Then ask yourself three questions:

Continued on page 100

Merrill Lynch grabs RCA staff

BY DAVID LUDLUM
CHICAGO

NEW YORK — Merrill Lynch & Co. has hired a team of "rocket scientists" from RCA Corp. to form a Management Science Group that will recommend strategies for Merrill Lynch's systems and other operations.

The group will apply the quantitative analytical techniques of management science to Merrill Lynch's current systems and future business opportunities, emphasizing the context of an expanding global marketplace, officials said.

The new organization will be headed by H. Newton Garber, a

31-year veteran of RCA and most recently its director of operations research. Merrill Lynch has also hired six members of Garber's RCA staff.

"We have seized a unique opportunity to deploy a functioning management science group," said DuWayne J. Peterson, Merrill Lynch's executive vice-president for operations, systems and telecommunications, who hired the group and will oversee it.

Garber approached Peterson about employing the group members, who were concerned about a lack of enthusiasm for their work on the part of executives of General Electric Co.,

which bought RCA last year, Garber said.

The move adds to a trend toward the use of so-called rocket scientists performing quantitative analysis of operations for financial institutions, according to Garber.

The group will examine all of Merrill Lynch's trading and operations and develop a strategy for enhancing them, according to William Clark, a spokesman for the company.

One of its top priorities will be to develop a systems architecture policy with greater emphasis on Merrill Lynch's business

Continued on page 98

Security body inks blue chips

BY DAVID LUDLUM
CHICAGO

MENLO PARK, Calif. — Twenty major computer user and vendor organizations have joined a new information security institute launched by the not-for-profit research and consulting organization SRI International.

Among the user members of the new group — the International Information Integrity Institute — are Aetna Life & Casualty Co., Amoco Corp., Chemical Bank, Sears, Roebuck and Co. and IBM Corp.

Members, who pay \$19,000 a year, also include vendors Digital Equipment Corp., Honeywell Inc., IBM, ICL PLC and NCR Corp.

The institute offers members a number of hot line or clinics, forums and guest research fellowships at SRI as well as contacts with government agencies and reports on cases of lost information, technological developments, security standards and management issues such as security expenditures.

Computer security has not kept pace with the threats posed to it by technologies such as networking, microcomputers, electronic funds transfer and electronic mail, according to Donn Parker, an SRI information

Continued on page 99

Software maintenance doesn't get any respect

BY DAVID LUDLUM
CHICAGO

ORLANDO, Fla. — The bad news for data processing shops is that companies participating in a survey last year said they expected software maintenance budgets to grow an average of 26% during the next 12 months.

The good news is that growth in budgets and staffs was expected to offset some of the demand. Growth of maintenance budgets was pegged at 15% and expansion of maintenance staffs at 17% in a survey by Quality Assurance Institute, Inc., which recently released the results of the

software survey. The growth was projected as some data processing managers continue efforts to spruce up the image of software maintenance, which is regarded as less prestigious than development of new programs, according to the institute.

Respondents indicated their greatest software maintenance problems are needs for quantitative evaluation of their expenditures and for more formal procedures, according to William Perry, executive director of the institute.

Continued on page 98

Data View

Future programmers/analysts

The percentage of surveyed college freshmen interested in a career as a computer programmer or systems analyst



INFORMATION PROVIDED BY UNIVERSITY OF CALIFORNIA AT LOS ANGELES AND AMERICAN COUNCIL ON EDUCATION, 1986

BOOK REVIEWS

End-user computing meets competitive advantage

The Information Edge

By N. Dean Meyer

and Mary E. Boone

Two of the most pronounced trends in the field of information management today are the placement of processing power in the hands of users through personal computers and the drive to use information technology for competitive advantage.

Increasingly, these developments are feeding off each other as end users themselves are able to reach for the competitive advantage, following the examples of well-chronicled corporate systems that captured market share.

Perhaps that is the most significant — yet unstated — les-

son to draw from *The Information Edge*. The authors, partners in the consulting firm N. Dean Meyer and Associates, Inc., catalog 60 applications of information technology credited with generating competitive advantage, with heavy emphasis on end-user computing in an office setting.

Meyer and Boone estimate dollar benefits for most cases and add methodologies for identifying relevant strategic applications and estimating the potential payoffs, along with a discussion of obstacles that might be encountered in implementing them.

They acknowledge the book considers only successful cases.

"Our purpose is to understand the measurable benefits of office automation — not how to implement new systems," they write. "Issues of organizational change are already well-treated in the literature, and there is no further need to study failures and report on the mistakes of the past."

The cases appear in seven chapters devoted to business functions: selling, marketing, operations, people management, finance, new products and negotiations. There is a separate consideration of teleconferencing.

They deal with companies of various sizes in a range of industries. Many of the companies are anonymous, and the accounts

are based primarily on assessments by users within them. At least a quarter of the cases involve use of a spreadsheet, and a greater proportion employ a personal computer.

In a case in the chapter on operations that the authors call one of the most dramatic in the book, "a medium-size chemical company" made long-sought improvements in the quality of a product after a PC and spreadsheet enabled an engineer to track 128 production parameters rather than the 25 he had been following. The improved quality is credited with boosting annual sales from \$5 million to \$50 million and raising yearly

Continued on page 95

CALENDAR

FEBRUARY 15-21

Electronic Imaging '87. Anaheim, Calif., Feb. 16-19 — Contact: Institute for Graphic Communication, 375 Commonwealth Ave., Boston, Mass. 02115.

15th Annual Association for Computing Machinery Computer Science Conference. St. Louis, Feb. 16-19 — Contact: Department of Computer Science, University of Pittsburgh, P.O. Box 13526, Pittsburgh, Pa. 15243.

Electronic Data Interchange. Alexandria, Va., Feb. 18 — Contact: American Trucking Association Management Systems Committee, 2200 Mill Road, Alexandria, Va. 22314. Also being held April 30 in Kansas City, Mo., and May 20 in Chicago.

Resource Planning for Central File Conversion. New Orleans, Feb. 18-20 — Contact: Innovative Systems, Inc., 341 Fourth Ave., Pittsburgh, Pa. 15222.

Expo-IV (for Pick-based system users). Atlantic City, Feb. 18-20 — Contact: Expo-TMS, 22951 La Cadena, Laguna Hills, Calif. 92653.

Interactive Instruction Delivery. Kissimmee, Fla., Feb. 18-20 — Contact: Society for Applied Learning Technology, 50 Culpeper St., Warrenton, Va. 22186.

Electronic Data Interchange. Arlington, Va., Feb. 19-20 — Contact: TDCC, Suite 712, 1101 17th St. N.W., Washington, D.C. 20036. Also being held March 26-27 in Washington, D.C.

FEBRUARY 22-28

Leasing: Techniques & Analysis. Chicago, Feb. 19-20 — Contact: American Management Association, P.O. Box 319, Saranac Lake, N.Y. 12983. Also being held March 5-6 in Washington, D.C., and March 26-27 in New York.

Electronic Printing Systems/Directions in Digital Imaging Conference. Miami, Feb. 22-26 — Contact: Electronic Printing Systems, Directions in Digital Imaging, Suite 1, 1855 E. Vista Way, Vista, Calif. 92084.

1987 User Group Conference. Marina del Rey, Calif., Feb. 22-25 — Contact: Trax Software, Inc., 10801 National Blvd., Los Angeles, Calif. 90064.

Automating Systems Analysis and Design. St. Paul, Minn., Feb. 23-25 — Contact: Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138. Also being held in Des Moines, Iowa; Lansing, Mich.; Austin, Texas; Toronto; Boston; Kansas City, Mo.; and Toledo, Ohio.

Exchange Carriers Standards Association Technical Subcommittee T1Q1. Orlando, Fla., Feb. 23-27 — Contact: Radisson Plaza Hotel Orlando, 60 S. Ivanhoe Blvd., Orlando, Fla. 32804.

IBM: Mastering the Transition 1987-1992. New York, Feb. 24-25 — Contact: The Yankee Group, Seminar De-

vision, 200 Portland St., Boston, Mass. 02114.

Competing With Computing. Dallas, Feb. 24 — Contact: Education Registrar, Nolan, Norton & Co., One Cranberry Hill, Lexington, Mass. 02173.

Computer Aided Software Engineering Symposium. Atlanta, Feb. 24-26 — Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810.

Third Annual Champs Users' Group Meeting. Crystal River, Fla., Feb. 25-27

— Contact: SCI Software, 1255 N. Vanage Point Drive, Crystal River, Fla. 32629.

Introduction to Performance/Capacity Management. Phoenix, Feb. 25-27 — Contact: Applied Computer Research, Inc., P.O. Box 9280, Phoenix, Ariz. 85068.

Phoenix Conference on Computers and Communications. Scottsdale, Ariz., Feb. 25-27 — Contact: Arizona State University, College of Engineering and Applied Sciences, Tempe, Ariz. 85287.

ICIA '87/Commex International. Atlanta, Feb. 25-28 — Contact: Interna-

tional Communications Industries Association, 3150 Spring St., Fairfax, Va. 22031.

X/Open Demonstration of Portability. Luxembourg, Feb. 26 — Contact: X/Open Office, Sterling Public Relations, 1 Chelsea Manor Gardens, London, England SW3.

MARCH 1-7

Second International Conference on CD ROM. Seattle, March 2-3 — Contact: Microsoft Corp., Box 97017, 16011 N.E. 36th Way, Redmond, Wash. 98073.

Seventh Annual Computer Operations Conference. New Orleans, March



2-5 — Contact: Association for Computer Operations Management, Suite 201, 11501 Brookhurst, Garden Grove, Calif. 92640.

Eighth Annual Conference on EDP Performance/Capacity Management. Phoenix, March 2-4 — Contact: Applied Computer Research, Inc., P.O. Box 9280, Phoenix, Ariz. 85068.

Corporate Electronic Publishing Systems Show and Conference. Chicago, March 3-5 — Contact: Cahners Exposition Group, 999 Summer St., Stamford, Conn. 06905.

DEXPO Europe '87. London, March 3-5 — Contact: Expoconsul International, 3

Independence Way, Princeton, N.J. 08540.

Securicom '87 Congress on Computer and Communications Security and Protection. Paris, March 4-6 — Contact: Securicom-Sedep, 8 rue de la Michodiere, 75002 Paris, France.

Data Communications Network Management. Boston, March 5-6 — Contact: Software Institute of America, Inc., 8 Windsor St., Andover, Mass. 01810. Also being held April 30-May 1 in Seattle.

Taxation of Intellectual Property. Chicago, March 5-6 — Contact: Deborah Gordon Public Relations, Inc., 320 N.

Michigan Ave., Chicago, Ill. 60601.

MARCH 8-14

Cullinet Applications and End-User Computing Conference. Dallas, March 8-10 — Contact: Cullinet Software, Inc., 400 Blue Hill Drive, Westwood, Ma. 02090.

Spring 1987 Conference of the North American Honeywell Users Association. Charleston, S.C., March 8-13 — Contact: NAHU, Inc., P.O. Box 2037, Willingboro, N.J. 08046.

CICS/VS Internal Structures & Control Flows. Atlanta, March 9 — Contact: American Data Group, Inc., 1770 Indian

Trail Road, Norcross, Ga. 30093.

Automated Manufacturing: Computers, Communications and Controls, in the Factory. St. Petersburg Beach, Fla., March 9-10 — Contact: Frost & Sullivan, Inc., 106 Fulton St., New York, N.Y. 10038.

New Technologies. Beverly Hills, Calif., March 9-10 — Contact: Seybold Seminars, 6922 Wildlife Road, Malibu, Calif. 90265.

CAD/CAM, CAE Executive Workshops '87. Cambridge, Mass., March 9-10 — Contact: Cynthia Wolfram, Data-tech, Inc., 16 Myrtle Ave., Cambridge, Mass. 02138.

Electronic Banking: The Challenges of Tomorrow's Bank Within Yesterday's Legal Framework. Brussels, March 9-10 — Contact: Alisa Galinski, Conference Office Brussels, 19 rue de l'Orme, B-1040 Brussels.

11th Annual BRS User Meeting. Kansas City, Mo., March 9-10 — Contact: BRS Information Technologies, 1200 Route 7, Latham, N.Y. 12110.

Computer Technology and the Law: Protecting Your Rights. Arlington, Va., March 9-11 — Contact: Technology Transfer Institute, 741 Tenth St., Santa Monica, Calif. 90402.

Federal Office Systems Expo (FOSE). Washington, D.C., March 9-12 — Contact: National Trade Productions, Inc., Suite 400, 2111 Eisenhower Ave., Alexandria, Va. 22314.

Effective Management Skills for the MIS Manager. Cambridge, Mass., March 9-12 — Contact: American Management Association, 135 West 50th St., New York, N.Y. 10020.

Open Network Architecture: Computer III Status Report. Arlington, Va., March 10-11 — Contact: Philips Publishing, Inc., 7811 Montrose Road, Potomac, Md. 20854.

Corporation East. New York, March 10-12 — Contact: Linda Morris, Corpcon, P.O. Box 3727, Santa Monica, Calif. 90403. Also being held April 28-30 in Chicago and Sept. 21-23 in Los Angeles.

Software Performance Engineering. Denver, March 10-13 — Contact: Performance Engineering Services, P.O. Box 9802, Dept. 120, Austin, Texas 78766. Also being held June 2-5 in Washington, D.C.

Optical Information Systems. Long Beach, Calif., March 11-13 — Contact: Meckler Publishing, 11 Ferry Lane W., Westport, Conn. 06880.

MARCH 15-21

The 1987 National Automated Clearing House Association Conference. San Diego, March 15-18 — Contact: NACHA, Suite 640, 1901 L Street N.W., Washington, D.C. 20036.

Fifth Annual Computer Based Training Conference and Exposition. Atlanta, March 15-18 — Contact: Julia Sta-

Continued on page 94

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Continued from page 93

sio, Conference Registrar, Weingarten Publications, Inc., 38 Chauncy St., Boston, Mass. 02111.

Software Quality Assurance. Los Angeles, March 16-17 — Contact: U.S. Professional Development Institute, Suite 221, 1734 Elton Road, Silver Spring, Md. 20903. Also being held March 23-24 in Washington, D.C., March 30-31 in Chicago and April 6-7 in New York.

1987 West Coast Manufacturing, Accounting and Production Information Control System (MAPICS) Users Conference. San Diego, March 16-17 — Contact: Salem Corp., 1654 Poplar Lane, Annapolis, Md. 21401.

Artificial Intelligence and Expert Systems. Cleveland, March 16-17 — Contact: Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138. Also being held in Louisville, Ky., Dayton, Ohio, Portland, Ore., Ft. Worth, Texas, Baltimore, Richmond, Va., Concord, Calif., Tulsa, Okla., St. Paul, Minn., Cincinnati and Toronto.

Fifth National Conference on Measuring Data Processing Quality and Productivity. Orlando, Fla., March 16-18 — Contact: Quality Assurance Institute, 9222 Bay Point Drive, Orlando, Fla. 32819.

Electronic Data Processing Audit Managers' Roundup III. Orlando, Fla., March 18-19 — Contact: MIS Training Institute, 4 Brewster Road, Framingham, Mass. 01701.

TCP/IP Interoperability Conference. Monterey, Calif., March 16-19 — Contact: Advanced Computing Environments, 21370 Via Ave., Cupertino, Calif. 95014.

Tutorial Week. Kissimmee, Fla., March 16-20 — Contact: Computer Society of IEEE, 1730 Massachusetts Ave. N.W., Washington, D.C. 20036.

Open Systems Interconnection. Washington, D.C., March 16-20 — Contact: Omnicom, Inc., 501 Church St. NE, Vienna, Va. 22180. Also being held April 27-May 1 in Minneapolis.

Workshop on Factory Communications. Gaithersburg, Md., March 17-18 — Contact: Robert Rosenthal, B217 Technology Building, National Bureau of Standards, Gaithersburg, Md. 20899.

The Fifth Technology Opportunity Conference on Optical Storage of Documents and Images. Washington, D.C., March 17-19 — Contact: Rothchild Consultants, 256 Laguna Honda Blvd., San Francisco, Calif. 94116.

The National Association of Bank Services Semiannual Meeting. Tampa, Fla., March 17-20 — Contact: National Association of Bank Services, Suite B, 5008 Pine Creek Drive, Westerville, Ohio 43081.

The International Phoenix User Group Meeting. Atlanta, March 18-19 — Contact: Livingston & Associates, P.O. Box 30619, Cleveland, Ohio 44130.

Testing Computer Software. Los An-

geles, March 18-20 — Contact: U.S. Professional Development Institute, Suite 221, 1734 Elton Road, Silver Spring, Md. 20903. Also being held March 25-27 in Washington, D.C., April 1-3 in Chicago, April 8-10 in New York and April 29-May 1 in San Francisco.

1987 Template User Network (TUN) Annual Conference. Arlington, Va., March 18-20 — Contact: Template, 9645 Scrantom Road, San Diego, Calif. 92121.

Innovative Systems, Inc. 1987 User Group Conference. San Francisco, March 18-20 — Contact: Innovative Systems, Inc., 341 Fourth Ave., Pittsburgh, Pa. 15222.

MARCH 22-28

Electronic Computing Health Oriented. Hot Springs, Va., March 22-25 — Contact: Electronic Computing Health Oriented, 10401 Fernwood Road, Bethesda, Md. 20804.

National Computer Graphics Association's Computer Graphics '87. Philadelphia, March 22-26 — Contact: National Computer Graphics Association, Suite 200, 2722 Merrilee Drive, Fairfax, Va. 22031.

Managing the Information Resource. Los Angeles, March 22-27 — Contact: Nolan, Norton & Co., One Cran-

berry Hill, Lexington, Mass. 02173.

Sixth Annual International Spectrum U.S.A. '87. Las Vegas, March 23-25 — Contact: International Data Base Management Association, Suite 104, 9740 Appalosa Road, San Diego, Calif. 92131.

National Capacity Planning Conference. Washington, D.C., March 23-26 — Contact: NCPA, 3825-1 South George Mason Drive, Falls Church, Va. 22041.

Walker Inter/Actions Users Conference. Denver, March 23-26 — Contact: Walker Interactive Products, 100 Spear St., San Francisco, Calif. 94105.

Continued on page 98

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Book reviews

CONTINUED FROM PAGE 91

profits by \$20 million.

In trying to catalog the variety of applications here and identifying dollar benefits, the authors come up with some far-fetched ones. In one, from the chapter on selling \$10 million of a \$100 million budget for a unit of the U.S. armed forces has been lost when the military budget was totaled. The authors credit the use of a spreadsheet in the preparation of the original budget to the unit's ability to identify what was missing overnight as Congress was acting on an appropriation. The request was restored and funded, generating a return on the computer investment.

the authors calculate, of \$9,900%.

To their credit, Meyer and Boone facilitate access to their 150 pages of cases with separate indexes for tools, industries and names and other key words.

In contrast to the raft of cases, they pack a methodology for identifying strategic opportunities into one 20-page chapter. In a business- and people-oriented approach, it calls for identifying a key business function and an individual involved with it who is likely to be an effective user, then helping him attain his goals. The reader is left on his own in selecting the appropriate technology to address the goals, except for some insightful words on why workers sometimes resist the introduction of new technology.

Hardcover, \$24.95, 322 pages, ISBN

0-07-041782-2, by McGraw-Hill Book Co., New York.

DAVID LUDLUM

BOOKS IN BRIEF

Technology's Crucible

By James Martin

Predictions cast as history as the author projects us to the year 2019 and then looks back to the 1980s. The book explores the questions, Is man at the mercy of technology or his own human nature? and, If man could understand where technology is leading society, could he control his future?

Paperback, \$15.95, 206 pages, ISBN 0-13-902024-1, by Prentice-Hall, Inc., Englewood Cliffs, N.J.

How to Develop Business Information Systems for End Users

By John Land

A basic book on developing business information systems that meet specific corporate goals, address user needs and let the manager be accountable for costs and user productivity.

Hardback, \$32.95, 240 pages, ISBN 0-071-86909-5, John Wiley & Sons, Inc., New York.

People and Computers

By James Danziger

The machine's influence on man, based on a study of 2,500 managers, professionals and clerical workers. The book explores how computers are used, their effect on productivity and the problems and environmental changes that are created for the worker.

Hardback, \$32.50, 268 pages, ISBN 0-231-06178-1, Columbia University Press, New York.

Applying Expert Systems in Business

By Dimitris Chourafas

Information for company presidents as well as MIS directors on how to decide whether to develop an expert system and how to do so once the decision is made. The material manages to be comprehensive and insightful.

Hardback, \$29.95, 232 pages, ISBN 0-07-010880-3, McGraw-Hill Book Co., New York.

Dictionary of Artificial Intelligence and Robots

By Jerry Rounberg

An easy-to-use, A-to-Z guide to 4,000 terms used in robotics, AI and computer-controlled technology.

Paperback, \$14.95, 203 pages, ISBN 0-071-84581-2, by John Wiley & Sons, Inc., New York.

Douglas Cobb's 1-2-3 Handbook

By Douglas Cobb

More than you probably will ever need to know about Lotus Development Corp.'s program.

Paperback, \$22.95, 720 pages, ISBN 0-553-34389-0, by Bantam Books, New York.

Publishers wishing to have their books considered for review can direct books, prepublication galley, press releases, catalogs or other information to George Harrar, Book Review Editor, Computerworld, P.O. Box 9171, 375 Coketate Road, Framingham, Mass. 01701.

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Computing exam dates released

The Institute for Certification of Computer Professionals (ICCP) last week announced that examinations for four professional certifications will be given on May 9 and November 11 this year.

The examinations will be given at 160 sites in the U.S. and abroad. The deadlines for receipt of applications are April 1 for the May tests and Oct. 1 for those given in November.

The certifications are associate computer professional, certified computer programmer, certified data processor and certified systems professional.

Further information is available from the ICCP, Suite 268, 2200 E. Devon Ave., Des Plaines, Ill. 60018.

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Software

CONTINUED FROM PAGE 91

While use of methodologies for new software development has grown extensively in recent years, use of them for maintenance has lagged, Perry said.

"It is a problem that has grown and been totally ignored. [Companies] concentrate their efforts on new systems development," he said. "It would be safe to conclude there have been no significant moves for the better in the last year."

Companies have individualistic approaches to maintenance. Within many, it is "a spontaneous type of process" negotiated with the user and lacking in direction from management, Perry explained.

The institute's survey did show an increase in the portion of respondents who designate a manager to oversee all maintenance — from 36% in 1985 to 45%. And on the average, they allocate 53% of their data processing budgets for software maintenance, up from 51% the previous year.

Nearly two-thirds — 63% — said they rely on one worker or group of workers for maintenance of particular software because no one else understands the code, although the portion was down from 78% a year earlier.

Nick Zvegintsov, editor of the "Software Maintenance News," and a director of the Software Maintenance Association, said he disagrees with Perry. Those in software maintenance need better training

and tools more than formal procedures, he maintained.

"It's like the infantry in battle," Zvegintsov said. "It won't work unless you have the abilities, skills and equipment at the bottom level, and that's where I would concentrate."

Zvegintsov said there is a sense of prestige and high morale among those working in maintenance. "We believe it is the most difficult job in software. It relies on people's skills, technical ability and spirit," he said. "We do hear outside that there are a lot of people still unconverted," he added.

More than half of the respondents to the institute's survey said that at their organizations, new development is regarded as more prestigious than maintenance.

Continued from page 94

17th Conference on Computer Audit, Control and Security, Boston, March 23-27 — Contact: EDP Auditors Foundation, Inc., P.O. Box 88180, Carol Stream, Ill. 60188.

Datacon '87, St. Louis, March 24-25 — Contact: Datacon, P.O. Box 1401, St. Louis, Mo. 63188.

I/O Interface '87, Gaithersburg, Md., March 24-25 — Contact: National Bureau of Standards, 216 Technology Building, Gaithersburg, Md. 20899.

Third International Conference on Computerization of Medical Records, Chicago, March 24-27 — Contact: Registrar, Institute for Medical Record Economics, 121 Mt. Vernon St., Boston, Mass. 02108.

1987 SIM Institutional Member Conference, Miami, March 25-27 — Contact: Society for Information Management, Suite 600, 111 E. Wacker Drive, Chicago, Ill. 60601.

12th West Coast Computer Faire, San Francisco, March 26-29 — Contact: The Interface Group, Inc., 300 First Ave., Needham, Mass. 02194.

MARCH 29-APRIL 4

The Inevitable Partnership, Atlanta, March 29-April 1 — Contact: Life Office Management Association, 5770 Powers Ferry Road, Atlanta, Ga. 30327.

EFTA Expo, Las Vegas, March 29-April 1 — Contact: Electronic Funds Transfer Association, Suite 1000, 1726 M St. N.W., Washington, D.C. 20036.

Management Information Systems for Strategic Advantage, Philadelphia, March 29-April 3 — Contact: Office of Executive Education, The Wharton School, 200 Vance Hall, University of Pennsylvania, Philadelphia, Pa. 19104.

Applying the Records Management Technologies, New York, March 30-April 1 — Contact: American Management Association, P.O. Box 319, Saratoga Lake, N.Y. 12863. Also being held April 13-15 in Chicago.

Merrill Lynch

CONTINUED FROM PAGE 91

objectives than past efforts, Garber said. The policy will address needs for future systems development, including compatibility. The group will define requirements for availability and currency of information, Garber explained. Among other approaches, it will use consensus management techniques, including an analytical hierarchy process, to develop a consensus from various views.

He said the group uses advanced personal computers "with a lot of soup in them" and advanced software packages ranging from office application to tools for analysis of mergers and acquisitions.

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Interface '87. Las Vegas. March 30-April 2 — Contact: The Interface Group, Inc., 300 First Ave., Needham, Mass. 02194.

Reducing the Cost of Software. Washington, D.C. March 31-April 2 — Contact: Performance Engineering Services, P.O. Box 9802, Dept. 120, Austin, Texas 78766.

The 1987 National Conference on Data Processing Quality Assurance. Chicago, April 1-3 — Contact: Quality Assurance Institute, 9222 Bay Point Drive, Orlando, Fla. 32819.

1987 CDLA Spring Meeting. Orlando, Fla., April 1-4 — Contact: Computer Dealers & Lessors Association, 1212 Potomac St. N.W., Washington, D.C. 20007.

APRIL 5-11

CHI & GI '87. Toronto, April 5-9 — Contact: Human Factors in Computing Systems & Graphics Interface 1987 Conference Office, Computer Systems Research Institute, University of Toronto, 2002 - 10 Kings College Road, Toronto, Ontario M5S 1A4.

The 1987 Eastern Simulation Conference. Orlando, Fla., April 6-9 — Contact: The Society For Computer Simulation, P.O. Box 17900, San Diego, Calif. 92117.

Real-Time Expert Systems: Artificial Intelligence at the Trading Desk. New York, April 7 — Contact: Wa-

ters Information Services, Inc., P.O. Box 2248, Binghamton, N.Y. 13902.

Fourth Annual International Conference on Technology and Education. Fort Worth, Texas, April 7-9 — Contact: Jimmie Thompson, International Conference on Technology and Education, 1400 One Tandy Center, Fort Worth, Texas 76102.

New Directions in Information Management. New York, April 8-9 — Contact: The Conference Board, 845 Third Ave., New York, N.Y. 10022.

Decision Support and Expert Systems: The Next Wave - A Developer's Perspective. Cambridge, Mass., April 9-10 — Contact: Decision Support Technology, Conference Registration Office, 51 Church St., Boston, Mass. 02116.

T-Carrier Networking Decisions. Washington, D.C., April 9-10 — Contact: The George Washington University, Washington, D.C. 20052.

California Educational Computing Consortium (CECC). San Jose, Calif., April 9-10 — Contact: Alexia Devin, CECC Treasurer, San Francisco State University, Accounting Data, NADM-358, 1600 Holloway Ave., San Francisco, Calif. 94132.

Satellite Communications Status '87: Technology, Applications & Markets. New York, April 9-10 — Chairman: Mark Chartrand. Contact: Frost & Sullivan, Inc., 106 Fulton St., New York, N.Y. 10038.

APRIL 12-18

Commercial Crime Conference. Hong Kong, April 12-17 — Contact: Computer Services, Hong Kong Productivity Council, 12th Floor, World Commerce Centre, 11 Canton Road, Tsimshatsui, Kowloon, Hong Kong.

Software Panorama. Atlanta, April 14-16 — Contact: Data Processing Management Association, Atlanta Chapter, P.O. Box 34, Atlanta, Ga. 30301.

APRIL 19-25

Standards: The Ties That Bind. New York, April 22-23 — Contact: The Yankee Group, 200 Portland St., Boston, Mass. 02114.

The Artificial Intelligence and Advanced Computer Technology Conference and Exhibition. Long Beach, Calif., April 22-24 — Contact: Tower Conference Management Co., 331 W. Wesley St., Wheaton, Ill. 60187.

Bar Coding Seminar Series. New York, April 23-24 — Contact: Automatic Identification Manufacturers, Inc., 1326 Preppert Road, Pittsburgh, Pa. 15238. Also being held May 18-19 in Chicago and June 8-9 in Atlanta.

In-House Consulting Skills for Systems Analysts. Chicago, April 23-24 — Contact: Data Tech Institute, P.O. Box 2429, Lakeview Plaza, Clifton, N.J. 07015.

APRIL 26-MAY 2

1987 Annual Systems Conference. Louisville, Ky., April 26-29 — Contact: Association for Systems Management, 24587 Bagley Road, Cleveland, Ohio 44138.

Software Licensing Agreements: Structure, Content, Law. Boston, April 27 — Contact: Data Tech Institute, P.O. Box 2429, Lakeview Plaza, Clifton, N.J. 07015.

The Branch of the Future. The Future of the Branch. Dallas, April 27-29 — Contact: Bankers Institute, 21 Tamal Vista Blvd., Corte Madera, Calif. 94925.

1987 Association for Information and Image Management Show. New York, April 27-30 — Association for Information and Image Management, 1100 Wayne Ave., Silver Spring, Md. 20910.

DEXPO South '87. Nashville, April 28-30 — Contact: Expocon International, Inc., 3 Independence Way, Princeton, N.J. 08540.

Nineteenth Annual International Management Information Systems Conference. Cambridge, Mass., April 29-May 1 — Contact: Paper Industry Management Association, 2400 E. Oakton St., Arlington Heights, Ill. 60005.

Electronic Data Interchange. Kansas City, Mo., April 30 — Contact: ATA Management Systems Department, 2200 Mill Road, Alexandria, Va. 22314.

Security body

CONTINUED FROM PAGE 91

security consultant who has developed the institute during the past three years.

Recent legislation and insurance considerations add to the need for corporate officers and directors to protect company assets and customer records, Parker said in a statement.

"Business organizations must be concerned with the broader concept of information integrity, which means maintaining information in good condition and safeguarding it not only from unauthorized appropriation and use but also from such things as accidental [loss]," Parker said.

Creation of the organization reflects the maturing of the data security field, which has revolved around "kind of an old-boy network," said Joan Reynolds, vice-president and corporate data security officer for Chemical Bank.

"Data security has matured to the point where it needs an organization exploring strategic needs — what's coming down the pike five years from now," Reynolds said.

At Ameco, officials look forward to exchanging information with other members, spokesman Richard Judy said. "The reviews provided with the membership are considered a benefit, but the reviews provided by members through candid discussions may prove even more beneficial," Judy said.

Spokesmen for both companies said they hope the organization will prompt vendors to develop more of the data security products that users need.

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Talk business

CONTINUED FROM PAGE 91

• Are we measuring the right things? For instance, if pricing for a chemical distribution firm is a key lever on profitability, does information systems provide ad hoc analysis capability for customer and product profitability to the people who make pricing decisions? In an insurance firm, if turnaround time for customer claims is key, do your systems track the distribution of claims processing times?

• Are there opportunities to reconfigure the business process using information technology to collapse the time it takes to serve customers or to improve

the consistency of internal decisions (for example, giving sales agents laptop computers to reduce order-to-shipment time)?

• Are there penalties for inaction? Investing in a library of reusable application code can take years but slash development time when completed. If you don't start work today, will competitors who do start obtain an insurmountable lead through their ability to introduce new information-based products faster than you?

The second task information systems executives need to focus on when they talk with their general managers is communicating effectively key issues the managers need to worry about.

General managers care about sales,

profits and competition — so don't emphasize your successes managing the systems shop or abstract notions such as data resource management. Such discussions belong in performance appraisal sessions or general educational sessions, not in hard-hitting business discussions.

Instead, pick two or three key issues already on their minds — and add one or two you believe they must begin to worry about. Then communicate how information technology contributes to resolving those issues.

My nominations for your own issues are:

• Business management information and its interaction with systems architecture. What constraints does the current

data architecture put on management's ability to understand the factors that drive profitability and competitive position? What specific help can be gained from new tools and techniques, such as data base management systems, personal computers and data policies, and what will they cost?

One MIS executive demonstrated the power of better management information by jury-rigging a key analysis that a business sector executive had been seeking and then showed how better definition of product codes could enable the executive to run it again whenever he desired.

• Competitors' system activities. Are competitors doing anything that places your firm at a disadvantage, such as outpacing you on development or using new tools and techniques that involve long lead times to imitate?

An insurance company's MIS director discovered that competitors had three to four times the development budget he had, far more than his firm could afford. This MIS director's conclusion: His own firm was probably too small to support the aggressive new product strategy increasingly being followed by the competition.

The third task is to build a shared vision of how your firm will manage technology. As the only executive in senior management with in-depth knowledge of information technology, it's your responsibility to get the management team to build a vision — a philosophy — of how the firm will manage its technology base. That vision can only be forged once the management team understands how information technology contributes to what's at stake for the firm (task 1) and to the few issues they really care about (task 2).

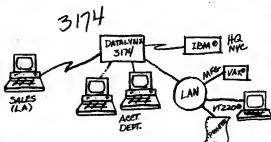
With those tasks under way, you can begin to orchestrate the firm's response to old nagging questions such as:

- How should the company structure its technology base, and what management processes are necessary to make that structure work?
- As technology evolves, how will the firm distribute responsibility among various business units for pieces of the technology pie?
- What policy framework and administrative mechanisms for issues such as conflict resolution, for example, must exist before that distribution can occur?
- Is the firm ready in skills and culture for decentralization without loss of control?
- How will the firm communicate the imperatives posed by its strategy to the technology groups responsible for implementing systems?
- How will the technology groups communicate the costs and capabilities of emerging technology to the business?

Finally, remember that most general managers don't yet know how to think about the information systems function, certainly not with the instinctive understanding they have about areas such as marketing. It's your responsibility to set the context for your relationship by focusing their attention on how information technology affects what's at stake for your firm and how it should be managed.

Packer is a senior associate with the information technology practice of consulting firm The MAC Group, Inc. in Cambridge, Mass.

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COMPUTER INDUSTRY

INDUSTRY INSIGHT



Alan Alper

AI firms face maturity

For nearly 30 years, scientists have been developing ways to enable computers to mimic the human process of reasoning. These purveyors of so-called artificial intelligence have sought to transform computers from number-crunching machines to problem-solving systems.

Over the past decade, AI has left academic university laboratories and become a commercial opportunity for many scientists-turned-entrepreneurs. Led by firms such as Carnegie Group, Inc., Inference Corp., Intellicorp and Teknowledge, Inc., the charge is on to bring AI into the mainstream.

The aforementioned vendors, known as the Gang of Four, are beginning to make some headway in providing efficient application development tools — and in making some money. They are touting the virtues of expert systems — systems that can reason with the help of human-derived knowledge — to an interested but somewhat overwhelmed commercial data processing audience.

As in the computer industry at large, however, it appears that the demand for expert systems may have temporarily cooled. In short order, the young industry has penetrated those scientific and engineering firms and government institutions that had previously embraced any and everything that was AI-related.

"The market is in transition," suggests Tom Schwartz, a consultant and publisher of "Who's Who in AI." "The vendors have come close to saturating those who are concerned with R&D. It's now a project management issue — not magic anymore — and return on investment is the pressing question."

Dr. Alexander Jacobson, president and chief executive of

Continued on page 108

Banyan family tree firmly rooted in users' multivendor dilemmas

Banyan — An East Indian tree of the mulberry family with branches that arched out shoots that grow down to the soil and root to form secondary trunks.

BY PATRICIA KEEFE
OF STAFF

WESTBORO, Mass. — One of the lesser known challengers in the networking arena is a small East Coast company — named after a tree, of all things — that conceived a transparent linking system called Virtual Networking System (Vines) in the midst of a fog-shrouded Seattle airport. It was an appropriate begin-



Banyan's Mahoney

ning, both in name and creation, for Banyan Systems, Inc., whose Vines provided a welcome solution to users struggling with an

unruly tangle of multivendor, multitechnology installations.

The product line centers around Vines, a proprietary Unix-based network operating system that is ported to proprietary and industry-standard file servers like the IBM Personal Computer AT.

Much like the company name, Vines provides an anchoring trunk to a multitude of secondary shoots, those being local and remote departmental clusters, minis, mainframes and multiple local-area networks (LANs) all integrated together into one

Continued on page 112

Compaq has healthy '86

BY ALAN J. RYAN
OF STAFF

HOUSTON — Compaq Computer Corp. reported last week a 20% increase in sales and a 62% increase in profits for its fourth quarter.

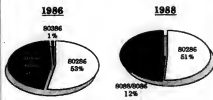
Compaq President Rod Canion attributed the rise to the continued heavy demand for his company's Intel Corp. 80286-based portables and desktop systems and the 386.

Canion said the high-performance systems accounted for

Continued on page 108

Data View

High-end micro growth
Projected breakdown of Intel Corp.'s IBM-compatible microprocessor shipments in U.S.



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Migent hits Ashton-Tate with return salvo

Antitrust action charges trade secret theft suit intended to delay data base

BY CLYDE WILDER
OF STAFF

INCLINE VILLAGE, Nev. — Microcomputer data base developer Migent Software, Inc. has fired a return salvo against market leader Ashton-Tate, filing an antitrust lawsuit in response to Ashton-Tate's recent trade secret theft suit against Migent [CW, Jan. 12].

In its antitrust suit filed in U.S. District Court in Reno, Nev., Migent charged that Ashton-Tate's suit was filed specifically to delay Migent's introduction of a new data base product, code-named Emerald Bay.

The Emerald Bay development team is led by C. Wayne Ratliff, developer of Ashton-

Tate's original Dbase II. Several former Ashton-Tate executives now work for Migent, including Migent Chairman Carl Gritzmaker.

Ashton-Tate's suit charged that Ratliff illegally brought proprietary Ashton-Tate information to Migent and violated a three-year no-compete contract that he signed with Ashton-Tate. Ratliff has strongly denied the charge.

"We're not going to lie down and play dead," a Migent spokeswoman said. "Ashton-Tate has resorted to tactics which we believe are illegal and unfair. Ratliff's work is being done in fair and lawful fashion."

Stanley Witkow, Ashton-

Tate's general counsel, called the Migent antitrust suit "balderdash.... There's a very common response to a proprietary rights lawsuit, and we were not surprised by it," he said. "We don't file lawsuits to protect our market position, we file lawsuits to protect our proprietary technology."

Cases may merge

Although Migent's action was not technically a countersuit, the two cases may be joined together for trial, according to Witkow. He also alleged that Migent's suit was partially motivated by Migent's desire to "get a more favorable venue."

If the cases eventually go to

Leasing woes hit IBM unit

BY CLINTON WILDER
OF STAFF

STAMFORD, Conn. — In another bellwether of slowing demand for IBM hardware, IBM's leasing subsidiary last week reported its first annual decline in overall business volume since its formation.

Although IBM Credit Corp. (ICC) posted a 14% gain in profit and a 27% revenue increase, its 1986 business volume — the total value of equipment for which it either wrote leases or financed through installment payment agreements — declined 8% to \$2.85 billion. ICC's purchases of IBM equipment to lease remained roughly flat with year-earlier levels of about \$2 billion, but its installment payment agreements volume plummeted 21%.

Continued on page 111

Inside

- Apple strategy calls for rollouts, focused markets. Page 102.
- MSA reports revenue, profits up in '86. Page 111.
- Forties on the wisdom of jumping on the LAN wagon. Page 114.

trial, they may prove to be a critical legal test of the transfer of software concepts and code structures by software development professionals who change jobs. In addition, the legal controversy has thrust Migent, an obscure software vendor before Gritzmaker's arrival, into the forefront of the coveted micro data base market.

"I'm surprised that Ashton-Tate would be worried about competition from a small company," said Jeffrey Tarter, editor of "Softletter," a micro software industry newsletter in Chelmsford, Mass.

"Data base is not a technology-driven business at this stage," Tarter added. "Even if Ratliff were to pull a rabbit out of a hat tomorrow, the problem of converting everyone in large corporations to a new standard is formidable."

Ripened Apple plants seeds for future success

BY PEGGY WATT
STAFF

CUPERTINO, Calif. — Some observers diplomatically say Apple Computer, Inc. has matured. Others snort and say it has gone stodgy.

Its last two shareholders'

meetings have no longer revolved around product announcements, nor have they resembled pep rallies. But earnings are up, inventories down and revenue at a plateau — and Apple's leaders say they look to the microcomputer company's second

decade with both triumph and optimism.

"As we began fiscal 1986, a lot of people questioned our ability to exist," Apple President and Chief Executive Officer John Sculley said recently. "But when we closed the year, a lot of people

were applauding our success and bright future."

And, other officials add, Apple's time is ripe. IBM's earnings have declined for two consecutive years, partly due to personal computer competition from clones. Big Blue's 5-year-old

Personal Computer is finally past its peak, amid rumors and debate surrounding its next incarnation.

"IBM lost about eight market share points to the competition in the past six months," says John Zeisler, Apple's manager of business marketing. "The fragmentation of the market has helped Apple."

Filling pipeline

In order to seize the opportunity, Apple has filled its pipeline with products for the next three years, Sculley says.

"You'll never see three or 3½ years between improvements in our products," says Jean-Louis Gasse, vice-president of research and development, a department that was the beneficiary of some \$126 million in Apple expenditures last year. This year, Apple has already announced its long-awaited server and software, with new models of the Mac due in March. Connectivity products promise to be among Apple's interests.

Zeisler says desktop publishing is still among Apple's priorities but that it will "move much more into the mainstream in 1987," reaching both the high- and low-end markets. "If we do a good job with desktop publishing, we won't have to talk about it as a separate application in a few years. It will be built into every Macintosh," he adds.

Involving turf

Apple's other market priorities are business management, with a relational data base reportedly under development, and engineering applications, which could invade the turf of workstation makers such as Apollo Computer, Inc. and Sun Microsystems, Inc.

"There is a tremendous acceptance of the Macintosh in aerospace and energy firms," Zeisler says. "We're not trying to compete against the Sams and Apollos of the world but in controlling some of their characteristics for a wider customer base."

Apple has gotten help this year from third-party developers, who accounted for much of the early success of the Apple II family with add-ons and are now enhancing the Mac. Javier Friedman, marketing manager of the network and communications group, says Apple is considering a testing program to certify third-party products.

Apple's own engineering department includes several Digital Equipment Corp. VAXs, IBM 370s and a 4300, along with the well-publicized Cray Research, Inc. supercomputer purchased last year. "That's a significant change from three years ago," Friedman says. The new equipment is also the evidence of R&D spending that rose 75% in fiscal 1986, Sculley says. He expects R&D to account for about 8% of revenue this fiscal year.

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Firm weathers financially stormy leasing industry

BY ALAN ALPER
CIVILIAN

WESTPORT, Conn. — The swiftly changing currents of the computer leasing industry can be a challenge to negotiate. While numerous competitors have run aground, unable to avoid technological and financial hazards, Jerry Minsky, president of Technology Finance Group, Inc., has guided his company through the industry's murky waters for the better part of the last decade.

Minsky, a 13-year computer leasing industry veteran, has experienced the ebb and flow of a business that very often is controlled by external forces such as tax laws, interest rates and the underlying value of a particular vendor's technology.

Technology Finance Group, founded as Alantus Corp. in 1972, was once among the largest computer leasing firms in the industry. However, the firm faded during the late 1970s and 1980s when cutthroat competition and the revelation that the New York-based firm OPM Leasing Services, Inc. had written phony leases and defrauded corporate investors of millions of dollars gave the leasing industry a collective black eye.

The value of Technology Finance Group's lease portfolio dropped during that time from about \$150 million to about \$100 million a year, as larger companies such as Comdisco, Inc., which formerly traded exclusively in used equipment, took the leasing industry by storm.

Some of these deep-pocketed firms tied their sails to selling leases for tax benefits via Wall Street syndicates. But Minsky says he was always wary of selling tax shelters through Wall Street underwriters.

"The difference between us and some of the others was that we didn't rely on syndicates; we sold our deals directly to investors, not through intermediaries," he says. "That single decision allowed us to survive some of the problems we inherited from the earlier time frame."

The repeal of the investment tax credit, which removes the tax benefit of financing computer leases, has forced smaller lessors that had used the investment tax credit to find new means of funding their businesses.

"Loss of the investment tax credit will have little effect on us," Minsky maintains. "In not more than 20% of our business has the investment tax credit been given to the lessor. We have other ways to shelter our income."

Minsky says he believes loss of the investment tax credit will be a healthy development for the leasing industry since the tax-benefit bargaining chip is eliminated. "Now the focus will be on

credit-worthiness of the lessee, stability of the computer manufacturer and his ability to maintain and enhance the equipment, as well as the residual value of the equipment," Minsky observes.

Many believe the creation of

income funds to finance short-term operating leases, however, is an unsettling development for the industry, since the promise of high returns on investments is often based on inflated residual value projections. The projected payoffs, particularly for IBM

equipment in which the market is flooded and residual values are down, may end up being nothing more than a pipe dream, Minsky asserts.

"Everybody's complaining about the income funds, but everybody is doing them," Minsky

says. "In some cases, people are being promised 12% and the return of their principal, when in reality that may not be the case."

To acquire equipment, Minsky is relying more on bank borrowing than ever before. As with many other leasing firms in the past two years, the ever-present capital demands of the business are also forcing Tech-

Continued on page 111

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Compaq's '86

CONTINUED FROM PAGE 101

72% of the company's sales during the quarter. He added that orders for the Deskpro 386 exceeded supply throughout the fourth quarter.

"The results obviously show that the customer set out there likes Compaq's high-end products," said John Dean, an analyst with Montgomery Securities in San Francisco. "We would expect them to continue their sales success in spite of rumors of an IBM 80386-based product floating around."

For its fourth quarter ended Dec. 31, Compaq recorded sales of \$186.9 million, compared with sales of \$156.3 million for

the fourth quarter of 1985. Income for the period was \$16.2 million, or 49 cents per share, compared with \$10 million, or 32 cents per share, in the fourth quarter of 1985.

Sales were \$625.2 million for the year, an increase of 24% over sales of \$503.9 million in 1985. Income rose to \$42.9 million, or \$1.33 per share, compared with income of \$26.6 million, or 90 cents per share, in 1985, an increase of 61%.

Analyst Bruce Lupatkin of Hambrecht & Quist, Inc. in San Francisco, said the results were "outstanding, but that was expected." He attributed the success to the strength of Deskpro 386 sales. Lupatkin said the first buyers of the Deskpro 386 were software developers and "people who were power hungry. But there are

corporations that are considering the 386 as part of their overall strategy," he added. "It's making inroads everywhere."

Nibbles and big bites

While the influx of other 386-based machines may nibble at Compaq's sales, analysts said the competition will not take a big bite. "At this point in time, I don't think there is really anybody in the high channels that has a 386 product," Dean said.

"I think that any time there is additional competition and you are really the sole vendor shipping, it's going to have some impact," Lupatkin said, adding that that impact will likely be slight. In the dealer channels, Compaq is the major 386 vendor, and that will probably

not change, Dean said. "Compaq has solidified that shelf space," he noted.

According to a statement made last November by Mike Survey, Compaq's vice-president of marketing, order registration cards showed that the Deskpro 386s were being purchased for personal productivity applications, computer-aided design and engineering, network file servers, software development and use within Microsoft Corp. Xenix environments.

Compaq's overseas sales have more than doubled during 1986, which led to the company's announcement of plans to establish a \$23 million manufacturing facility in Erskine, Scotland. The facility is intended to enable Compaq to meet the needs of its European markets and is expected to provide duty savings.

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AI firms mature

CONTINUED FROM PAGE 101

ficer of 8-year-old Inference in Los Angeles, concurs. "The initial appetite has been met," Jacobson explains. "There is a pause taking place as vendors reposition themselves."

Gaught in a number of binds, Symbolics, Inc. in Cambridge, Mass., is one vendor looking for a better position. Symbolics recently laid off 17% of its 950-member work force and posted a second-quarter operating loss of \$3.4 million on revenue of \$26.5 million.

The firm, known for its special-purpose processor that uses LISP, is also up against a marketplace looking for standard hardware platforms for design and application delivery.

Users these days are seeking expert systems that run on general-purpose processors, such as a Digital Equipment Corp. VAX or IBM mainframe or Unibus-based workstations. There is also the Intel Corp. 80386 microprocessor coming around the bend, which provides the power and speed well suited to expert systems development.

Howard Cannon, Symbolics' director of special projects, takes umbrage at such criticism, noting that their products do connect with VAXs via Ethernet and communicate with IBM processors via SNA links. "We've always believed you have to integrate into an existing environment to be successful," he says.

Symbolics, he says, has been hurt by the newer competitors' hype. "A lot of firms are saying, 'Oh, we do this, and we do that,' and it's creating confusion in the marketplace," Cannon says.

Perhaps, however, the second wave is ready to identify itself. At a recent conference for MIS executives and managers sponsored by Information Management Perspective, Inc. in New Brunswick, N.J., only four of the 60 attendees said their companies had begun implementing expert systems technology. But all, judging by the attendance at the conference, were planning to do so.

A data administrator at a major New York financial institution, summed up the feeling of many in attendance. "We're still trying to figure out how we're going to use this technology," he said, "but we already know that 70% of our processing is going to make use of it."

Such words of encouragement must have AI vendors chomping at the bit.

After a Computerworld's Mid-Atlantic bureau correspondent.

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NICKELS
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Duquesne Systems, Inc. reported revenue for the first quarter ended Dec. 31 of \$8.6 million, compared with \$4 million reported for the same period a year ago. Profits were \$1.9 million, or 36 cents per share, compared with \$941,000, or 21 cents per share, in the prior year.

Convex Computer Corp. announced revenue for the year ended Dec. 31 of \$40.2 million, a 200% increase over \$13.5 million reported in the previous year. Net income for the year was \$4 million, or 26 cents per share, compared with

a net loss in the previous year. For the fourth quarter revenue was \$12.9 million, compared with \$6.9 million a year earlier. Profits for the quarter were \$1.4 million, or 8 cents per share, compared with \$330,000, or 2 cents per share, for the like quarter a year ago.

Policy Management Systems Corp. announced revenue for the fourth quarter ended Dec. 31 of \$43.6 million, compared with \$26.3 million a year ago. Profits were \$3.9 million, compared with \$3.1 million in the previous year.

Revenue for the year was \$150.6 million, compared with \$102.8 million a year ago. Profits were \$13.8 million, or 85 cents per share, compared with \$14.4 million, or 89 cents per share, a year ago.

Software license fees cited as MSA reports 171% profit increase for '86

ATLANTA — Management Science America, Inc. (MSA) officially closed the books on a successful 1986 last week, announcing a 28% gain in revenue and a 171% rise in profits from the firm's relatively weak 1985.

The mainframe applications vendor reported net income for the year of \$18.7 million, or \$1.03 per share, which was up from \$6.9 million, or 39 cents per share, in the previous year.

MSA sales reportedly approached the \$200 million mark at \$193.5 million, com-

pared with \$151.7 million in sales in the prior year.

MSA also noted that revenue from software package license fees, which represents new business, increased 37% to \$120.6 million in 1986.

In the fourth quarter, MSA reported profits of \$12.9 million, or 71 cents per share, compared to \$10 million, or 56 cents per share, in reported profits for the fourth quarter of 1985.

Fourth-quarter sales rose to \$77.7 million from \$57.6 million.

Demand hits

CONTINUED FROM PAGE 101

from \$1.11 billion in 1985 to \$874.3 million.

"ICC is operating in the part of IBM's business that is not growing," said Bob Durdjovic, president of Annex Research, Inc. in Phoenix.

ICC's business decline was particularly acute in the fourth quarter. The leasing unit fell far short of matching the huge volume of the 1985 fourth quarter, in which IBM shipped — and ICC financed — a record number of 3090 mainframes.

In contrast, in the fourth quarter of 1986, ICC did just \$24.3 million in installment payment agreements business after \$850 million in the first nine months of the year, according to Annex Research figures.

However, ICC continued to post considerable success at the bottom line.

Firm weathers

CONTINUED FROM PAGE 105

nology Finance Group to dig more deeply into its cash reserves.

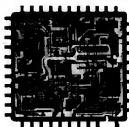
Minsky considered taking the company public late last year but opted against it for a variety of reasons, including a projected low valuation and mixed investor reactions to computer leasing firms.

The entry of IBM Credit Corp. (ICC) into the computer leasing business in 1982 has changed all the rules of handling Big Blue equipment, Minsky maintains. With the backing of "Bank IBM," Minsky says ICC is offering the lowest rates available on IBM equipment such as the entry-level 3090 mainframes. Independent lessors have shied away from the 3090 series because of projected skimpy residual values, Minsky says.

"IBM Credit Corp.'s charter is to help IBM install equipment," Minsky notes. "I don't believe their charter is to make money but to subsidize IBM. I'll never be able to prove it, but how can they borrow money at 6% and charge 7% when the world at large charges 9%?"

Like more and more independent lessors, Technology Finance Group has chosen to diversify its portfolio so that IBM equipment no longer represents a majority of its lease base.

The firm now handles Digital Equipment Corp., Honeywell, Inc. and Unisys Corp. computer equipment and is moving heavily into telecommunications gear and peripherals.



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Banyan

CONTINUED FROM PAGE 101

comprehensive network. All network resources, regardless of where they reside on the network, appear as extensions to user PCs, thanks to a networkwide naming and addressing system.

"Banyan's literature read just like our wish list. We were skeptical at first; they looked too good to be true," says Donna Staats, president of the Banyan Users Group and manager of office systems planning for Minneapolis-based World Bank, Banyan's largest installation. "But they were in fact able to do what we wanted."

Banyan has also won its share of kudos

from industry analysts. "They are one of the few companies that can talk a good story about wide-area and local-area networks," says Robert Clarke, a consultant with the Seybold Group, a market research firm in Torrance, Calif.

'Very focused'

The privately held company was founded in September 1983 by David C. Mahoney, Anand Jagannathan and Lawrence Florian. "Banyan has good, in-depth management. They are very focused," says Claire Fleig, director of research for International Technology Group in Los Altos, Calif.

Analysts estimate the venture capital-funded company is worth between \$20 million and \$25 million, predicting the

company may jump as high as \$40 million this year. Mahoney hints at the possibility of going public late this year or early in 1988.

Banyan approaches networking with a focus befitting the background of its founders — minicomputer and office systems concepts. President and Chief Executive Officer Mahoney spent 10 years with Data General Corp., managing DG's communications/networking hardware and software products, before forming Banyan. Also, Banyan engineers can lay claim to having helped design Digital Equipment Corp.'s PDP-11 minis and the DEC Rainbow.

This systems orientation is crucial in that it allows Banyan to anticipate the moves of systems integrators — mini-

computer vendors — on the high end and gives a leg up on its competitors at the low end, particularly Novell, Inc. in Orem, Utah, and 3Com Corp. in Santa Clara, Calif. Although they dwarf Banyan in size, these two are just beginning to stretch beyond the work group clusters to provide links to host systems and remote locations.

Banyan concentrated mostly on building sales last year, and the response has been good, analysts say. "[Part of] Banyan's problem is that it is trying to make money at this point, while Novell and 3Com are going businesses," says George Colony, president of Forrester Research, Inc. in Cambridge, Mass.

'Risk-taking' clientele

While Banyan can not yet touch Novell or 3Com's market share, it has built a loyal and enthusiastic, if still small, following. Launched last year, the Banyan Users Group today numbers about 100 member companies, with a heavy regional emphasis in the Northeast and Southwest. "We were all risk-takers at the time, as Banyan's technology was not yet blessed," Staats says.

Despite what analysts call a good, solid strategy, Banyan today finds itself at a crossroads, caught in a Catch-22 of sorts.

Chief among the company's goals for this year is to increase market share in order to produce the revenue it needs to grow the operation and its product lines.

But Banyan lacks name recognition and is handicapped by its limited ability to provide support services, supporters say. Without either, it will be hard to penetrate the networking market at the speed with which Banyan wants to grow.

Support is another pebble in Banyan's shoe. Banyan contends complaints about its ability to support customers, although a user questioned Mahoney at a recent conference, complaining about problems with equipment she had purchased from a dealer.

Banyan's approach to support relies heavily on third parties. Analysts question whether dealers in particular are capable of properly installing and supporting the sophisticated Vines network.

Direct sales are much less troublesome. Banyan has concentrated its efforts on large corporate customers, such as World Bank, Bank of Boston Corp., Bank of New England Corp. and Citibank N.A. The MIS departments at these sites all capably take on the bulk of support requirements for the Banyan network.

"Networking is highly support service-intensive, and Banyan's limited resources have it at somewhat of a disadvantage here," Forrester Research's Colony says.

Despite criticism, analysts are willing to paint Banyan a bright future. Many consider Banyan an even more likely candidate than 3Com to catch, and even surpass, Novell. "Banyan could be an excellent alternative to Novell," Clarke of the Seybold Group predicts.

The support and viability issues are easily solved by money. Short of generating the necessary revenue on its own, Banyan has the option of providing those funds through continued venture capital investment, a public offering or an equity investment or buyout by a larger firm. All are viable options. "I think Banyan has to look for a partner in this market," says International Technology Group's Fleig, pointing to the success Banyan has had with TRW, Inc.

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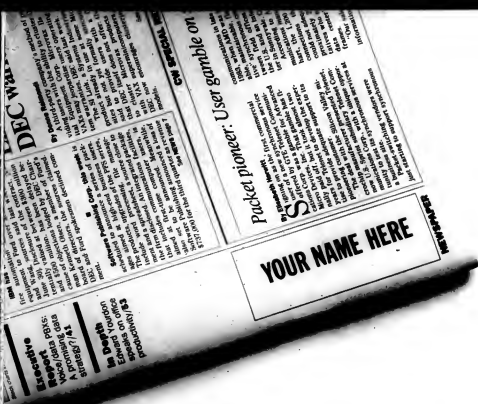
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ACTIVE
ISSUES

Kathy Porteus

Investors: This
LAN is my LAN

Several weeks ago, investors hopped on the local-area network (LAN) bandwagon, and they have no doubt enjoyed the ride so far. Since Jan. 2, stocks of LAN companies have gained between 19% and 43% in price per share. Such move-

ment reflects not only the robust stock market but also growing investor belief in a rosy year for the LAN market.

"This certainly seems to finally be the 'year of the LAN,'" says George Kelley of Morgan Stanley Group, Inc. "The overhang from IBM is now gone, and users are becoming more comfortable with the fact that networking represents the next round of improvements for white collar workers who already are benefiting from the use of personal computers."

According to Paul Sherer of Robertson, Coleman & Stephens, investors now realize that LAN companies provide real value to personal computer users. Such a perception about LANs, and the fact that a major portion of the installed

base of personal computers has yet to be connected, strengthens the argument for investing in this area, Sherer says.

Sherer recommends purchase of 3Com Corp. (COMS — 19½), Bridge Communications, Inc. (BLAN — 19½) and Novell, Inc. (NOVL — 35¼). Sherer says he likes 3Com for its retail distribution leverage in taking advantage of increased demand for PC networks. He favors Bridge for its "excellent new product flow" and Novell for its dominance in

Investors are bullish on LAN vendors
Closing price per share in national over-the-counter trading

	Dec. 31	Feb. 2	% Change
Bridge Communications	15½	19½	24%
DCA	27	33½	25%
Novell	25¼	36	40%
3Com	16¼	20¼	27%
Ungermann-Bass	9¼	12½	39%

CFO/CHART

value-added resale channels.

Sherer estimates calendar-year earnings for 3Com, Bridge and Novell will be 92 cents, 86 cents and \$1.70 per share, respectively.

On the other hand, Laura Peck, communications analyst with L.F. Rothschild, Unterberg Towbin, has become less aggressive in her recommendation of 3Com and Digital Communications Associates, Inc. (DCAI — 32¼), owing to recent strong performances by those stocks. Instead, she emphasizes her recommendation of Ungermann-Bass, Inc. (UNGR — 13¼).

Peck expects Ungermann-Bass to show an earnings turnaround this year, a story the stock does not yet fully reflect. Based on her estimate for this year of 70 cents per share, Peck says Ungermann-Bass still sells below the price/earnings multiple of other LAN firms.

While investment activity in LAN companies currently focuses on personal computer networking, Mark Stahlman of Sanford C. Bernstein & Co. says he believes networks based on IBM's Token-Ring and General Motors Corp.'s Manufacturing Automation Protocol (MAP) are two businesses "that can really boom in 1987." Stahlman recommends purchase of Ungermann-Bass because it is the company best positioned in both of these markets.

Ungermann-Bass is among the most active companies in factory networking through Industrial Networking, Inc. (INI), its joint venture with General Electric Co. Although Stahlman recognizes that reductions in capital spending at GM will slow progress of INI's much-publicized network contract with GM, he maintains that INI "has successfully expanded its customer base now that product is available and GM has proven that the MAP concept works."

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Perot puts \$20M
in Jobs' start-up

They say politics makes strange bedfellows, but so does the computer business.

Two of the industry's most controversial figures — Apple Computer, Inc. co-founder Steven Jobs and Electronic Data Systems Corp. founder H. Ross Perot — have joined forces. Perot recently paid \$20 million of his \$750 million General Motors Corp. stock sale proceeds for a 16% stake in Next, Inc. — Jobs' start-up company that is developing a "scholar's workstation" for the higher education market. Perot will also hold a seat on the Next board of directors.

Next also said that Carnegie-Mellon University and Stanford University have jointly invested \$1.32 million for a 1% ownership in the company.

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Digital Equipment Corp. Named Marketer of the Year

Despite Most High-Tech Profits Slowing, DEC Keeps Its Business Growing

By Nat Sakowski

MAYNARD, MASS.—To analysts' astonishment, in an atmosphere of doom and gloom, layoffs, cost cutting, lackluster profits, and worst-case scenario projections for the future, Digital Equipment Corp. keeps racking up impressive earnings, quarter after quarter. Third-quarter earnings, for example, were up 85.7% on a 14.2 gain in revenues. Those results contrast with industry leader IBM's 27% decline.

Nor do analysts think DEC's recent performance is a fluke. "Analysts

sure all its computers communicate with each other. That investment is now paying off. In the last 20 months, DEC has introduced seven high-performance systems, including the \$1-million VAX 8800, which comes close to matching some of IBM's mainframes in performance; the MicroVax II, a powerful desktop mini that begins at \$20,000; and the VAXmate, the IBM PC compatible with built-in local area networking capability selling for a little more than \$40,000.

Each of these computers can run the same software programs and share data with other VAX machines in a network.

clearly aimed at general commercial users. It lets a user easily access a word processing, spreadsheet, or appointment calendar, do electronic mail, or printing, by stepping down through a menu. It even features Windows, the latest hassle-dance software from Microsoft.

DEC has been furiously beefing up its marketing and sales staffs. Many already have technical sophistication and have been laid-off by other companies doing less well than DEC. In-house training has become more sophisticated, too. Once sales and marketing were taken for granted, DEC was to

be oriented.

Continued on the page 22

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SEPTEMBER 16, 1993
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Centram accepts buyout deal

President says Sun offer is 'significantly' better than 3Com's

BY JAMES A. MARTIN
A W. STAFF

MOUNTAIN VIEW, Calif. — 3Com Corp.'s intended acquisition of Centram Systems West, Inc., a small Berkeley, Calif., microcomputer network vendor, had been progressing as planned until Sun Microsystems, Inc. stepped in last week with a deal Centram could not resist.

In an agreement Centram President Nat Goldhaber described as "the closest thing to having our cake and eating it too," Sun Microsystems signed a letter of intent to acquire Centram for some 685,000 shares of Sun common stock, valued at \$20 million.

3Com did not reveal the amount of its offer to Centram, but 3Com Vice-President of Software Robert Bressler said Sun's offer was "significantly more than ours."

3Com had been negotiating to acquire Centram since November, according to Bressler, until Sun stepped in last week. Meanwhile, Sun had been considering Centram as an acquisition since before 3Com's announcement, according to Scott McNeely, president and chairman of Sun.

The move was seen as an important strategic step for Sun, a rapidly growing company anxious to offer its Unix-based

workstation users a networking interface to Apple Computer, Inc.'s Macintosh and IBM Personal Computers. In addition, privately held Centram, as an independent Sun subsidiary, will benefit from Sun's research and development efforts and distribution network.

"It's a smart move for both Sun and Centram," said Mark Stahlman, research analyst for Sanford C. Bernstein & Co., a New York-based investment research firm. "Centram gets to remain independent, they're being paid more money, and they're working with the leader in Unix system software. For Sun, the advantage is it now has a lock on the product which ties PCs into Unix, which is a very important additional capability."

Since July, Centram has sold some 21,000 copies of Tops, a micro networking product that links Macintoshes and IBM PCs and compatibles to Unix-based systems. Tops is said to be an important technological fit with Sun's Network File System network, according to company officials and analysts.

"Every one of our customers has PCs and Macintoshes in volume, so it makes sense for us to tie those into our network," Sun's McNeely said. "The one piece missing in our network was

the connection to the Macintosh and PC world, and Tops gives us that."

While many expressed surprise at the 3Com-Centram partnership's abrupt end, the news of Sun's interest was equally unexpected. "I would never have thought of Sun as a suitor for Centram," said Richard Shaffer, editor and publisher of "Computer Letter," a New York-based micro industry newsletter. "Sun has been repositioning itself toward the higher end Unix market as the price/performance leader with the ability to network systems."

"Centram is associated with much lower performance equipment, such as the Macintosh," he said. "But Sun is a strong company, and this acquisition will make it even stronger."

Although there have been recent rumors that Apple is readying a Macintosh offering similar features to Sun workstations at lower prices, Sun is not in essence providing a network link to its competitors, analysts said.

It is unlikely that Apple will introduce its rumored "Sun-killer" this year, if at all, Sanford C. Bernstein's Stahlman said. "Their product will be a single-user, high-end Mac based on the Motorola Corp. 68020 microprocessor," he said.

Screws

FROM PAGE 1

MIS at Storer Communications, Inc. in Miami Beach, Fla., says he would like to see the high end of the line increase one more level and then gently overlap the 9370 line.

"Then we could use VM as a common operating system, like Digital Equipment Corp. has, and then we'll be all right," he says.

Murphy now has a 4381 Q-3 model and says that in the future he will likely upgrade it to a Model 14, a move that IBM tells him will make the machine 23% more powerful.

But ideally, he says, he would like to upgrade even beyond that.

Exploring the options

John Bjork, operations manager for P.C.N. Pty. Stores, Inc. in Matthews, N.C., says he is exploring several options: purchasing another 4381, using 9370s for distributed processing, going to a 3090 or combining all three options.

However, having just upgraded to a Model 14, Bjork says he does not need to upgrade further immediately.

Bjork says he talked to IBM last week and was told his representatives "haven't seen anything" in the way of a new 4381.

While consultants disagree as to what course IBM will take, most of them concur that no announcement within the next 12 months is inevitable.

Next logical step

Frank Danbeck of Communications Network Architects, Inc. in Washington, D.C., says that eliminating the 4381 would be a logical step in thinning out the industry giant's product inventory in a time of architectural consolidation.

"If I were IBM, I would want to rid myself of a given product stream," he says, adding, "They need to build a bigger mousetrap, whatever it is," indicating that a more powerful system of some kind is needed in the 4381 niche.

Thomas Henkel, an industry analyst with Boston-based The Yankee Group, says that he believes the machine's days are numbered.

"The 4381 has 12 months left, then a new 9370 will blow it out of the water," Henkel predicts.

"There is no point to a product line of [only] 8 to 15 million instructions per second," (MIPS) Henkel stresses.

One point in favor of the continued survival of the 4381 is that it runs MVS/XA and VM/XA, and the 9370 does not run either version.

"Given the price difference between the 9370 and the 4381, they need a mid-level machine

that can run MVS/XA," says Dale Kutnick, a consultant at the Stamford, Conn.-based Gartner Group, Inc.

However, only 13% of 4381 users are running an extended architecture operating system, according to Computer Intelligence, a La Jolla, Calif.-based market research firm.

Kutnick says he expects a new 4381 in mid- to late 1988. Kutnick says a new machine "will be geared to run in a copier room, not a computer room, and will be air-cooled. You will get twice the performance at a lower price," he says.

Kutnick also predicts a figure of \$75,000 per MIPS, a price/performance ratio that is comparable to the 9370.

Norman Weizer, an analyst with Arthur D. Little, Inc. in Cambridge, Mass., agrees, stating that a 4381 with a vector processing feature will be an important weapon aimed at the scientific and engineering markets.

"IT WILL be geared to run in a copier room, and will be air-cooled. You will get twice the performance at a lower price."

DALE KUTNICK
GARTNER GROUP, INC.

"The 4381 is absolutely not going to be abandoned," Weizer says. Although the 9370 high end overlaps the 4381, he says, it does not overlap enough to displace it.

In addition, the 9370, even in clusters, will not replace the 4381. "In some jobs, you need single-string performance," Weizer says.

In addition, Weizer says that the way the 3090 Model 150 is put together is too expensive to be priced to appeal to buyers who are in search of less power for fewer dollars.

The 4381 replacement, which will come in 1988 or late this year, will upgrade the 4300 Models 11, 12, 13, 14, the machines that were delivered in spring 1986, Weizer says.

A new 4381 will be more of a price competitor and will not need to operate in a computer room, he says.

Robert Strobl, an Arthur D. Little analyst, says that he does not think the VM operating system is well suited to a high-end 9370, because it is necessary to run VSE as a guest under VM in order to use the X.25 protocol.

"It's really a kludge," he says. "I always believed there would be a new 4300, and the 9370 announcement did not change my opinion," Strobl says.

3Com to accelerate product releases after fourth acquisition attempt fails

BY PATRICIA KEEFE
CW STAFF

SANTA CLARA, Calif. — After last week's botching of its fourth merger attempt in as many years, 3Com Corp. expects to bounce back with surprising quickness and a slew of product announcements.

A week after 3Com revealed its intention to purchase Centram Systems West, Inc. in Berkeley, Calif. — maker of the Tops network interface — it was jilted for another Berkeley resident, Sun Microsystems, Inc., a maker of Unix-based scientific engineering workstations (see story above).

3Com failed in three previous bids to merge with Sytek, Inc., Bridge Communications, Inc. and, more recently, Convergent Technologies, Inc.

Last year, after an intense six-month courtship with OEM manufacturer Convergent, 3Com's financial advisers canceled the nuptials on the wedding eve. The shored merger cost 3Com a half year of misdirected focus, allowing rival Novell, Inc.

of Orem, Utah, to race to a substantial lead in the local-area network market.

The reverse situation is possible for 3Com following this year's disappointment, particularly in the Apple Computer, Inc. Macintosh market.

First, 3Com will probably push up the release of its promised Macintosh port of the 3+ network software, according to Robert Bressler, vice-president and general manager of 3Com's Software Division.

The 3+ for the Mac has been in beta-testing, awaiting the final specifications for the Apple File Protocol (AFP). Plans to purchase Centram and then port certain features of 3Com's 3+ led to a third-quarter release date.

A spokesman for Apple said that Sun and now only has to update the beta version of 3+ Mac to the AFP, which includes a new driver from Apple, enhanced for networking. It will provide 3Com with the same user interface running over Tops. With minimal changes, Mac users

could see 3+ very soon, according to 3Com.

An earlier release date not only positions 3Com as one of the leaders in Apple networking, but it means 3Com will likely beat Novell's frustrated efforts to port its network operating system, Netware, to the Mac [CW, Jan. 19].

Bressler said users can expect a show of solidarity from Apple and 3Com, which are considering a campaign to position Apple's AppleShare file server at the networking low end, with a migration path to 3Com's 3+ family at the high end.

The point is to increase sales of both servers, and it is clear that 3Com will pursue this tack whether Apple gets involved or not.

A spokesman for Apple said the company generally tries not to get into a position of supporting one product over another. However, Apple does market 3Com's file server.

Mid-Atlantic bureau correspondent Alan Alper contributed to this report.

Users turn to leasing for protection

BY JEAN S. ROZMAN
LEWIS

Large users who lease IBM mainframes say they gain protection from rapid technical changes, such as IBM's recent decision to create a two-tier 3090 line.

Purchasers of IBM 3090 equipment complained last week that IBM's latest series of price/performance enhancements are available only through an upgrade in processor — from a Model 200 to a Model 400E, for example.

"The risk of technical obsolescence goes down dramatically with leasing," claimed James Benton, executive director of the Computer Dealers and Lessors Association, which is based in

Washington, D.C.

Some large users have already benefited from adopting a leasing policy. "We lease everything and we have plenty of capacity right now," said Ed Earles, director of information services for American Express Co.'s Fort Lauderdale, Fla. data processing center. The Fort Lauderdale center has two Model 200s, two Model 400s and an IBM 3084 QX.

"In the future when we make a decision to buy more 3090s," Earles said, "it will not be a capacity issue. It will be locked in terms of the financials of the situation."

In most cases, computer executives indicate, they would be going along with a leasing

contract for the upgraded machine — although it would probably have a longer term before payoff. "When an upgrade takes place sometime before a customer's lease is up, the leasing company is generally willing to handle the upgrade," said Svend Hartman, president of Computer Merchants, Inc. in Chappaqua, N.Y., a broker of IBM mainframes. "It represents new business for them."

Another user concern in favor of leasing, according to Benton is the fact that the IBM 3090's product life is nearly over. If that is the case, users said, they would rather save their purchasing dollars for the next IBM mainframe, Summit, expected to be announced before 1990.

Can the egos...? An alliance between micro data base vendor Ashton-Tate and a relational DBMS vendor such as Oracle or Relational Technology makes a lot of sense, Ashton-Tate boss Edward Eberly says. But, he added, egos are standing in the way. "Right now we're all out there pounding our chests individually," he said last week in New York.

Those characters from Seattle? Microsoft is working on a character-based version of its Windows operating environment that would be targeted toward low-power PCs and compatibles, according to Microsoft officials. The product is not a full implementation of Windows but consumes a lot less memory and will run on off-the-shelf PCs without special graphics hardware. Although Microsoft won't say, chances are that character-based Windows is a revamped version of Moolman, the IBM Topview work-alike that Microsoft picked up when it acquired Dynamical Systems last year.

Deja vu. West Coast sources claim Apple Computer's Open Mac has slipped off schedule. "It's just not testing well in Alpha," an informed source reports. The recently unveiled AppleShare file sharer, you might recall, was vaporous for two years after it was announced.

They've got the data. Reports have surfaced that IBM, Novell and Microsoft are jointly developing an interface to a data base file server, which should be unveiled before the year is out. The interface would run on Novell's Network network operating shell and IBM's PC Program network software. It's unclear what Microsoft stands to gain, but high prices of Windows have been advertising heavily, on rock radio no less, for data base server engines.

One for the surgeon general. William G. McGowan, chairman and CEO of MCI Communications, is said to have stopped smoking and dropped 12 pounds to recover from a heart attack he suffered on Dec. 22. Planning to return to work in a couple of months, the 59-year-old nemesis of the Bell System is already preparing to attack the Justice Department's proposal to allow the regional Bell holding companies to enter the long-distance market.

Lug on this one. Compaq has set Feb. 17 to introduce its lightest transportable system yet. The Intel 80286-based, 19-lb machine will come with a flip-up plasma display, two full-height expansion slots, a 20M-byte hard-disk drive and a 5¼-in. floppy drive. The machine is expected to compete in price with Toshiba's popular T3100 transportable.

Wish I may, wish I might... AT&T is said to be in the process of merging three of its data networking products into one integrated system, which will be called StarScribe. The three products are Starlan, AT&T's low-cost 1M bit/sec. Ethernet; Information Systems Network, an intelligent backbone network that links a variety of asynchronous devices; and Datakit, a data switch similar to ISN.

Open the floodgates... Gateway between the two leading communications environments — Open Systems Interconnect and IBM's Systems Network Architecture — are the goal of a joint marketing and development deal to be announced this week by Orion Group and Retix. Orion sells software to implement SNA-based protocols; Retix has a series of programs incorporating the OSI model.

...and build some bridges. Two industry sources say IBM is working with network vendor Ungermann-Bass on a late-1987 or early-1988 IBM PC AT-based bridge between IBM's Token-Ring network and the IBM 3725 communications processor. It is likely to provide a faster, more efficient connection than IBM's current 3725 Token-Ring connection, "which is slow," says Kenneth Thibault, president of Minneapolis consulting firm Architecture Technology.

When in doubt, wait awhile. One MIS manager looked closely at the new models for the IBM 3090 line and IBM's offer of discounts for customers installing systems before May. He views that as a good reason to wait until June to purchase a 3090. "I just don't want to see what they have planned for June...I've been burned before," he says.

DEC fills VAX

FROM PAGE 1

ration inspected to be priced at about \$10,000.

DEC user Don Awalt, corporate information systems manager for Rexnord Automation of Hunt Valley, Md., said he will look to Vaxstar as a cost-effective way to add users to his firm's stable, existing DEC network.

"We have some interest in it, but only for the fact that Vaxstar gives Microvax power in a much cheaper box," Awalt said.

"My feeling is they are getting very aggressive at the low end of the workstation market," commented analyst George Cole of Forrester Research, Inc., a Cambridge, Mass., market research firm, as he was speaking along with other analysts prior to DEC's confidential briefing last week. Vaxstar would make a strong Ultra, perhaps, but stressed. The product is directed more at workstation vendors such as Apollo Computer, Inc. than at IBM, Compaq added.

Both 2000 series systems, using a single-board version of the Microvax II CPU, will include a Vaxmate-type Ethernet adapter, 2M bytes of standard memory with expansion capability to 6M bytes and 5¼-in. disk drives

that support up to 159M bytes of on-line storage. The Microvax 2000 is expected to support up to four users and is aimed at the small business and department markets.

Although DEC is also expected to enhance its Vaxcluster offerings at the low end, some observers say the company is unlikely to offer a mix of large and small systems on the local-area Vaxcluster.

"Digital, right now, is in the position that IBM was in 1967, when it was able to deliver a unified product line with a single operating system to all of its customers. During that period, IBM achieved its most significant growth in recent decades," observed Charles T. Cassle, consultant with The Yankee Group in Boston.

In response to competitive pressures in the 1970s, IBM began offering incompatible computer lines, claiming that different types of functions demanded different computers. "I think that's a proven to be a wrong assumption," said Steven Smith, industry analyst for New York-based Prime Computer Group, Inc. "It created an opportunity for DEC to offer a more aggressively priced product."

DEC's goal is to deliver a single product line spanning a

1,000-to-1 price range, Cassle said. "With the high-end VAX 8974 and 8978 [announced in mid-January] priced at \$4.5 million and Vaxstar expected to be priced around \$10,000, Digital will have achieved a 500-to-1 price range," he observed.

Analyst Richard Mikita of Framingham, Mass.-based International Data Corp., said the Microvax 2000 is positioned to fill the price gap that Microvax II, with a base price of more than \$18,800, cannot address.

The firm still must address shortcomings in its mid-range offerings. While the VAX 8300 is strong in technical computing, it is weak in commercial processing, Mikita explained. At the high end, DEC lacks its own array processor or near-supercomputer, he added.

Both users and analysts pointed to connectivity as DEC's major strength. The local-area Vaxcluster announcement last fall reinforced the firm's ability to link its computing power not only across networks but also within smaller work groups. Clustering allows users to share resources and provides redundancy of data and programs should one or more clustered machines fail, according to DEC.

Senior Editor James Connelley contributed to this report.

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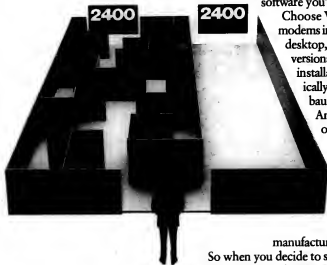
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